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Ontario Geological Survey
Open File Report 6151

Report of Activities, 2004 Resident Geologist Program

Kirkland Lake Regional Resident Geologist Report: Sudbury District

2005

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ONTARIO GEOLOGICAL SURVEY

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Kirkland Lake Regional Resident Geologist Report:
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by

M. Cosec, D. Farrow and J.M. Gaudreau

2005

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Ontario

Ontario Geological Survey
Regional Resident Geologist Program

Kirkland Lake Regional Resident Geologist (Sudbury District)—2004

by

M. Cosec, D. Farrow, and J.M. Gaudreau

2005

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KIRKLAND LAKE REGIONAL RESIDENT GEOLOGIST (SUDBURY DISTRICT)—2004

M. Cosec[1], D. Farrow[2], and J.M. Gaudreau[2]

[1]District Geologist, Sudbury District, Resident Geologist Program, Ontario Geological Survey

[2]District Support Geologist, Sudbury District, Resident Geologist Program, Ontario Geological Survey

INTRODUCTION

The Sudbury District Geologist Office includes the judicial districts of Sudbury, Manitoulin, Parry Sound, Muskoka, and parts of Nipissing and the County of Renfrew. It encompasses approximately 45 000 km^2 and over 340 geographical townships.

Nickel-copper mining operations predominate in the district. The Sudbury area is among the oldest and most economically viable mining camps in the world. Since 1888, well over $150 billion has been achieved from approximately 1 billion tons of ore raised.

The district is underlain by Archean granitic and gneissic rocks of the Superior Province, Paleoproterozoic mafic intrusive and sedimentary rocks of the Huronian Supergroup of the Southern Province, the Sudbury Igneous Complex, various lithologies in the Central Gneiss Complex of the Grenville Province, and Paleozoic sedimentary rocks of the Michigan Basin.

Such varied geological assemblages allow explorationists a wide assortment of targets for various commodities, including abundant surficial deposits. Exploration activity in 2004 was up approximately 30% from 2003.

The Sudbury District Geology office is located on the campus of Laurentian University in the Willet Green Miller Centre, 3rd Floor, 933 Ramsey Lake Road, P3E 6B5.

Monetary values in the report are in Canadian dollars, unless otherwise stated.

Table 1. Summary of claims recorded and assessment work credits in the Sudbury Mining Division in 2004.

Year	Claim Units Recorded	Claim Units Cancelled	Claim Units Active	Total ($) assessment work
2004	4479	5117	18932	$5,219,593.00
2003	2801	6519	16691	$5,249,246.00
2002	4946	8332	24501	$11,662,525.00
2001	8501	3531	27444	$4,326,222.00
2000	10 693	3313	22433	$4,441,042.00
1999	3094	2469	15215	$2,241,392.00
1998	2445	3815	13056	$2,182,037.00

Table 2. Metal prices in 2004.

FUTURES PRICING DATA

NYMEX Metal Futures - 2/10/2005

(Settlement Prices)	Open	High	Low	Last	Change
Feb 2005 Gold	$414.00	$418.50	$412.50	$418.00	+5.10
Mar 2005 Silver	$6.59	$6.98	$6.57	$6.98	+0.39
Apr 2005 Platinum	$857.00	$870.00	$856.50	$869.30	+18.00
Mar 2005 Palladium	$181.50	$183.00	$180.50	$182.25	+2.25
Feb 2005 Copper	$1.44	$1.47	$1.44	$1.47	+0.04

BASE METAL PRICES

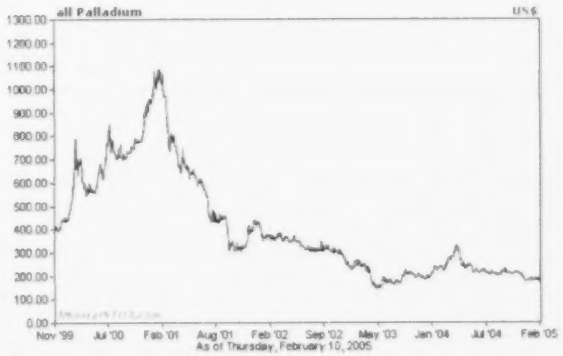
London Metal Exchange - 2/9/2005

(Settlement Prices)	US$/t	Change	US$/pound	Change
Aluminum	$1,817.00	+3.00	$0.8242	+0.0014
Copper	$3,145.00	-2.00	$1.4265	-0.0009
Lead	$956.00	-10.00	$0.4336	-0.0045
Nickel	$15,060.00	+455.00	$6.8311	+0.2064
Tin	$7,850.00	-15.00	$3.5607	-0.0068
Zinc	$1,288.50	+11.50	$0.5845	+0.0052

02/11/2005 Modified from NYMEX on www.mineralstox.com/index.asp

Nickel Cash Seller & Settlement US$/tonne (London Metal Exchange)
Jan '98 Oct '98 Jul '99 May '00 Feb '01 Nov '01 Sep '02 Jun '03 Apr '04 Feb '05
As of Wednesday, February 09, 2005

Copper Cash Seller & Settlement US$/tonne (London Metal Exchange)
Jan '98 Oct '98 Jul '99 May '00 Feb '01 Nov '01 Sep '02 Jun '03 Apr '04 Feb '05
As of Wednesday, February 09, 2005



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MINING ACTIVITY

Nickel and Copper Production

The year 2004 was another exciting year for mining companies in the Sudbury District.

Metal prices remained strong, with nickel hovering at or near US$7.00 per pound. Refer to Table 2. Consumption of nickel by China rose more than 20% in each of the past 4 years, including a 40% increase in 2004. China now ranks third in world nickel consumption after the United States and Japan, from a previous fifth place in 2003 (*The Sudbury Star*, February 5, 2005).

There were 13 nickel-copper mines operated by Falconbridge Limited, FNX Mining Company Incorporated / Dynatec Corporation, and Inco Limited in 2004.

FALCONBRIDGE LIMITED

Falconbridge Limited operated 4 mines in the Sudbury area in 2004. These included the Craig–Onaping and Fraser–Strathcona mines in Levack Township, the Lockerby Mine in Denison Township, and the Thayer Lindsley Mine in Blezard Township. Refer to Figure 1.

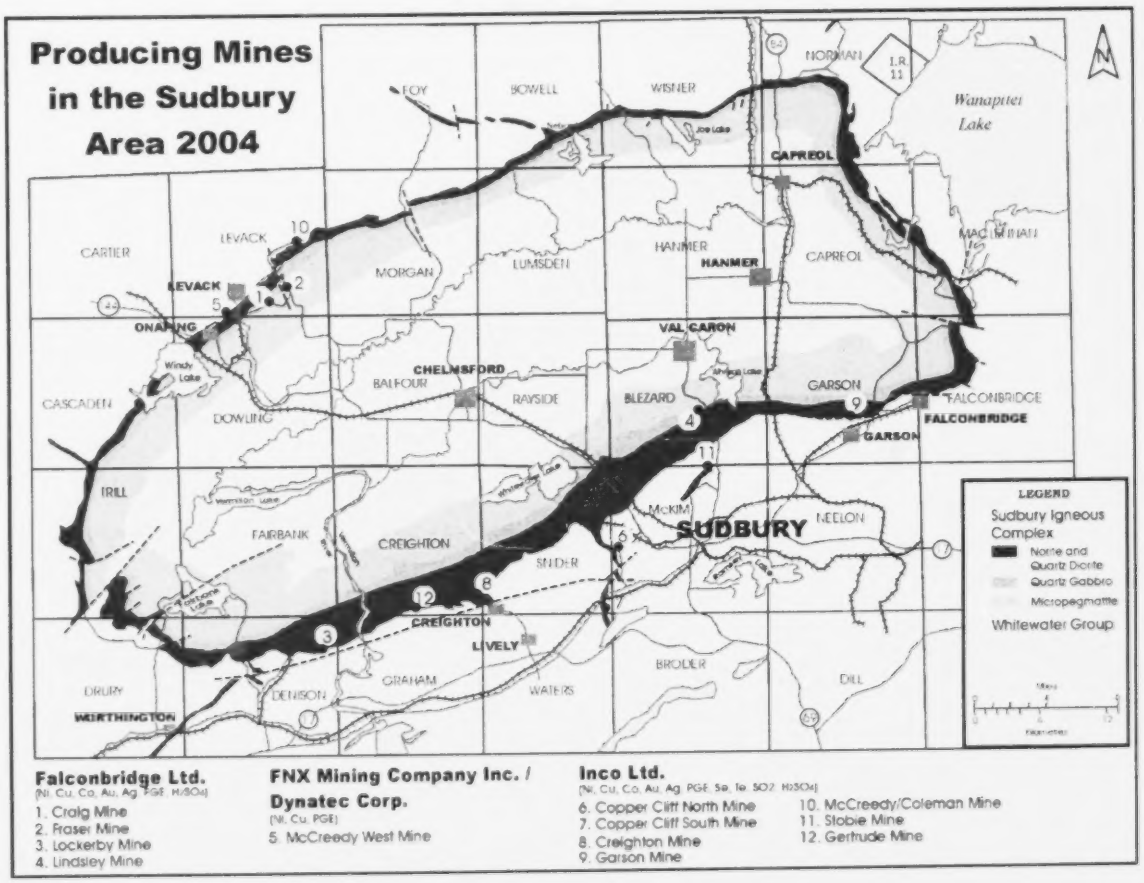

Figure 1. Producing mines in the Sudbury area, 2004.

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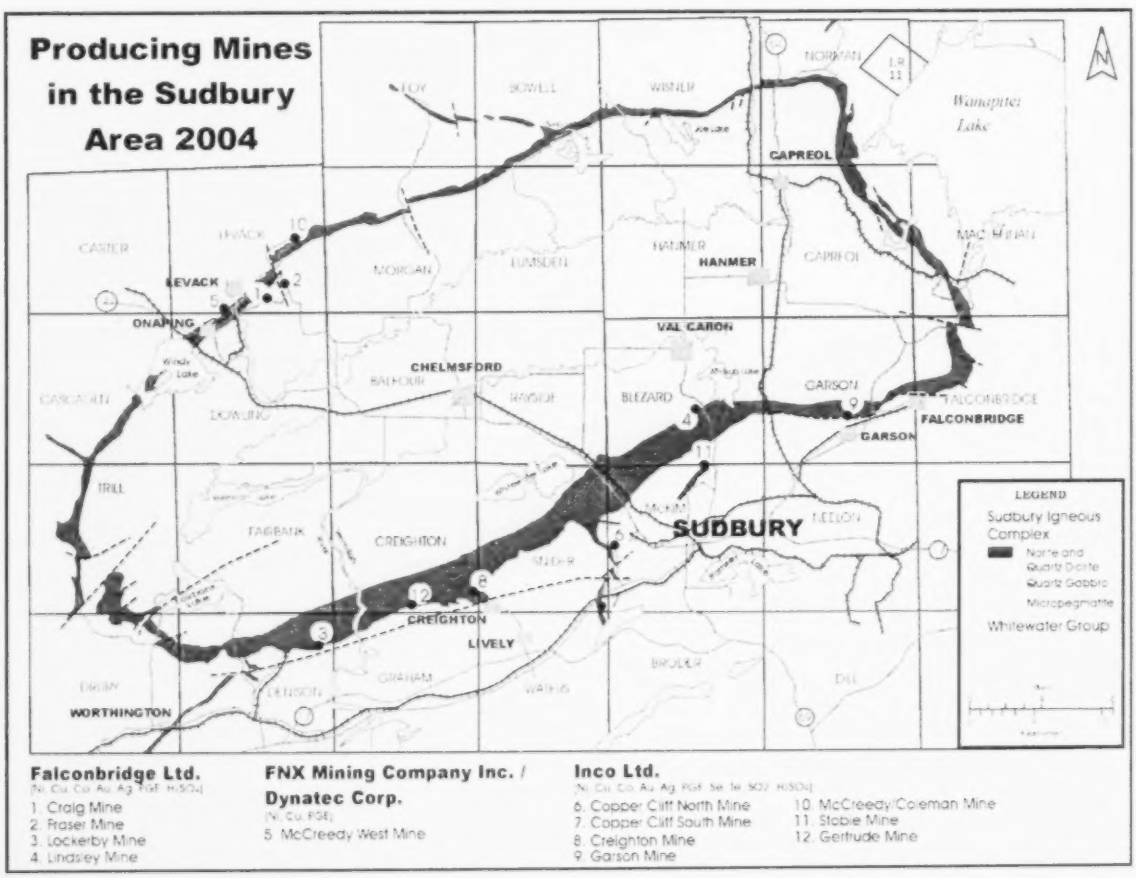


Figure 1. Producing mines in the Sudbury area, 2004.

The Lockerby Mine closed in September 2004. Production commenced in 1975 yielding 8 Mt ore at 1.79% Ni and 1.07% Cu. The mine has two 1300 m shafts, as well as an internal shaft that extends from 1200 to 1920 m below surface. At the time of writing, First Nickel Incorporated was in negotiations with Falconbridge Limited to purchase a 100% interest in the mine (*The Northern Miner,* January 14, 2005). Falconbridge Limited owns an 18.4% interest in First Nickel Incorporated. Current reserves at the Lockerby Mine are approximately 200 000 t at 1.88% Ni and 1.15% Cu (Table 3; *Canadian Mines Handbook, 2004-05*).

All ore is concentrated at the company's Strathcona Mill, which has a capacity of approximately 10 000 tons per day. Copper concentrate is shipped to the Kidd Metallurgical Division for smelting and refining. Nickel-copper concentrate is shipped to the Sudbury Smelter for refining. The produced matte contains nickel, copper, cobalt, precious metals, and platinum group elements. The smelter has the capacity to produce 130 000 tons per year. This matte is shipped to the company's Nikkelverk Refinery in Norway for further processing.

Roaster gas is treated in an adjacent plant to produce sulphuric acid, thereby reducing sulphur emissions. The plant has a capacity to produce 300 000 tons of sulphuric acid per year.

Metal production in 2004 was 22 604 t Ni and 24 694 t Cu, compared to 24 143 t Ni and 29 161 t Cu in 2003. (Falconbridge Limited Annual Report for 2004, February 2005).

At the beginning of 2004, the company had total proven and probable reserves of 14 091 000 t grading an average of 1.29% Ni and 1.28% Cu *(Canadian Mines Handbook, 2004-05)*.

Falconbridge Limited reported a consolidated record earning of US$672 million on 2004, compared to US$191 million in 2003 (Falconbridge Limited, Annual Report for 2004, February 2005).

Table 3. Falconbridge Limited mine production, Sudbury: annual ore production.

Year to December 31	**2003**	**2002**
Craig		
Ore mined, t	889 000	980 000
% Copper	0.46	0.57
% Nickel	1.54	1.77
Fraser		
Ore mined, t	686 000	639 000
% Copper	2.99	3.48
% Nickel	1.05	1.08
Lindsley		
Ore mined, t	429 000	418 000
% Copper	1.36	1.16
% Nickel	1.16	1.19
Lockerby		
Ore mined, t	225 000	258 000
% Copper	1.15	1.18
% Nickel	1.88	2.10
Total Sudbury Operations		
Ore mined, t	2 229 000	2 295 000
Ore processed, t	2 261 000	2 295 000
% Copper	1.48	1.56
% Nickel	1.35	1.51

(*Canadian Mines Handbook, 2004-05*)

FNX MINING COMPANY INCORPORATED / DYNATEC CORPORATION

On January 1, 2004, commercial production began at the companies' McCreedy West Mine in Levack Township. Bulk sampling and test mining had commenced in May 2003. In 2004, a total of 283 358 tons of ore were shipped to the Inco Limited Clarabelle Mill for processing. The ore is expected to yield 7 million pounds of recovered nickel, 4 million pounds recovered copper, and 3400 ounces combined platinum, palladium and gold. The production rate is 1000 tons per day. The mining plan expects this first phase to contain enough reserves for 5 years (FNX Mining Company Incorporated, press release, February 8, 2005)

Production from the PM Zone (footwall) ore is expected to commence in late 2005, also at a mining rate of 1000 tons per day (Phase 2 of the mining plan) (P. Lewis, FNX Mining Company Incorporated, personal communication, 2005).

Pending positive feasibility studies at the adjacent Levack Mine, full production could reach approximately 1 million tons of ore per year. Inco Limited operated the McCreedy Mine from 1970 to 1996. Production in that period totalled 16 million tons of ore raised.

The Levack Mine was operated by the Mond Nickel Company intermittently from 1913 to the early 1930s. Inco Limited operated the Levack Mine continuously from 1937 through 1993. Contact-type ore remaining at the Levack Mine is approximately 5 million tons grading 1.9% Ni and 0.9% Cu.

Early in 2002 FNX Mining Company Limited and Dynatec Corporation entered into an agreement with Inco Limited to earn a 100% interest in what was considered the latter's non-core properties. These included McCreedy West, Levack, Victoria, Kirkwood, and Norman (Podolsky) properties.

FNX Mining Company Limited reported revenue of $55.9 million in 2004, compared to zero revenue in 2003. (FNX Mining Company Incorporated, press release, February 8, 2005; P. Lewis, FNX Mining Company Incorporated, personal communication, 2005).

INCO LIMITED

Inco Limited operated 7 underground and 1 open pit mine in 2004. Processing facilities, which produce a total of 10 commodities, include the Clarabelle Mill (rated capacity approximately 45 000 tons per day), the Copper Cliff Smelter, 4 refineries, 3 sulphuric acid plants, 1 liquid sulphur plant, and one oxygen plant.

Adjusted net earnings for 2004 were US$848 million, compared with adjusted net earnings of US$276 million in 2003 (Inco Limited, press release, February 15, 2005).

A $34.8 million development project at the McCreedy West and Lower Coleman mines will increase annual production to 1.76 million tons by early 2005.

A $12 million project to develop low-grade ore at the Stobie Mine is expected to continue to the end of 2005. Production from this project commenced in 2001 and is expected to be at 6700 tons per day by 2006.

Development work also continued at the Creighton Deep project. Estimated reserves that could be accessed from an additional ore body, distal from the Creighton Deep deposit, is 4 Mt at 3.7% Ni and 3.9% Cu between the 7680-foot level and the 8220-foot level.

A project to deepen the Garson Mine to the 5070-foot level was completed by the end of 2004. This development will provide access to 7 Mt at 1.76% Ni, 1.37% Cu, and 1.1 g/t combined platinum group elements and gold. Current proven reserves has extended the mine life to 2012 (*Canadian Mines Handbook, 2004-05*).

Concentrate from Voisey's Bay operations will be available to Inco's Sudbury processing facilities by late 2005. Refer to Table 4 for production figures.

Table 4. Inco Limited mine production, Ontario Division: annual ore production.

Year to December 31	2003	2002
Copper Cliff North		
Ore mined, t	701 000	986 000
% Copper	1.16	1.29
% Nickel	1.21	1.18
Copper Cliff South		
Ore mined, t	769 000	1 035 000
% Copper	2.50	2.27
% Nickel	1.80	1.89
Creighton		
Ore mined, t	713 000	912 000
% Copper	1.53	1.53
% Nickel	2.10	2.14
Stobie		
Ore mined, t	2 222 000	2 792 000
% Copper	0.83	0.91
% Nickel	0.90	0.98
Garson		
Ore mined, t	434 000	584 000
% Copper	1.10	1.15
% Nickel	1.87	1.92
McCreedy East/Coleman		
Ore mined, t	870 000	1 084 000
% Copper	3.57	3.19
% Nickel	1.78	1.69
Gertrude		
Ore mined, t	453 000	156 000
% Copper	0.36	0.37
% Nickel	1.01	1.09
Crean Hill (closed 2002)		
Ore mined, t	—	261 000
% Copper	—	1.29
% Nickel	—	1.75
Total Ontario Operations		
Ore mined, t	6 162 000	7 810 000
% Copper	1.53	1.57
% Nickel	1.39	1.45

(*Canadian Mines Handbook, 2004-05*)

Industrial Mineral Production

Several industrial mineral commodities were produced in the Sudbury district in 2004 (Figure 2, Table 5). Commodities include dolostone, silica, trap rock, flagstone, organic soil conditioner, and sundry varieties of coloured landscape aggregate. Numerous companies extracted a considerable amount of sand and gravel for various purposes.

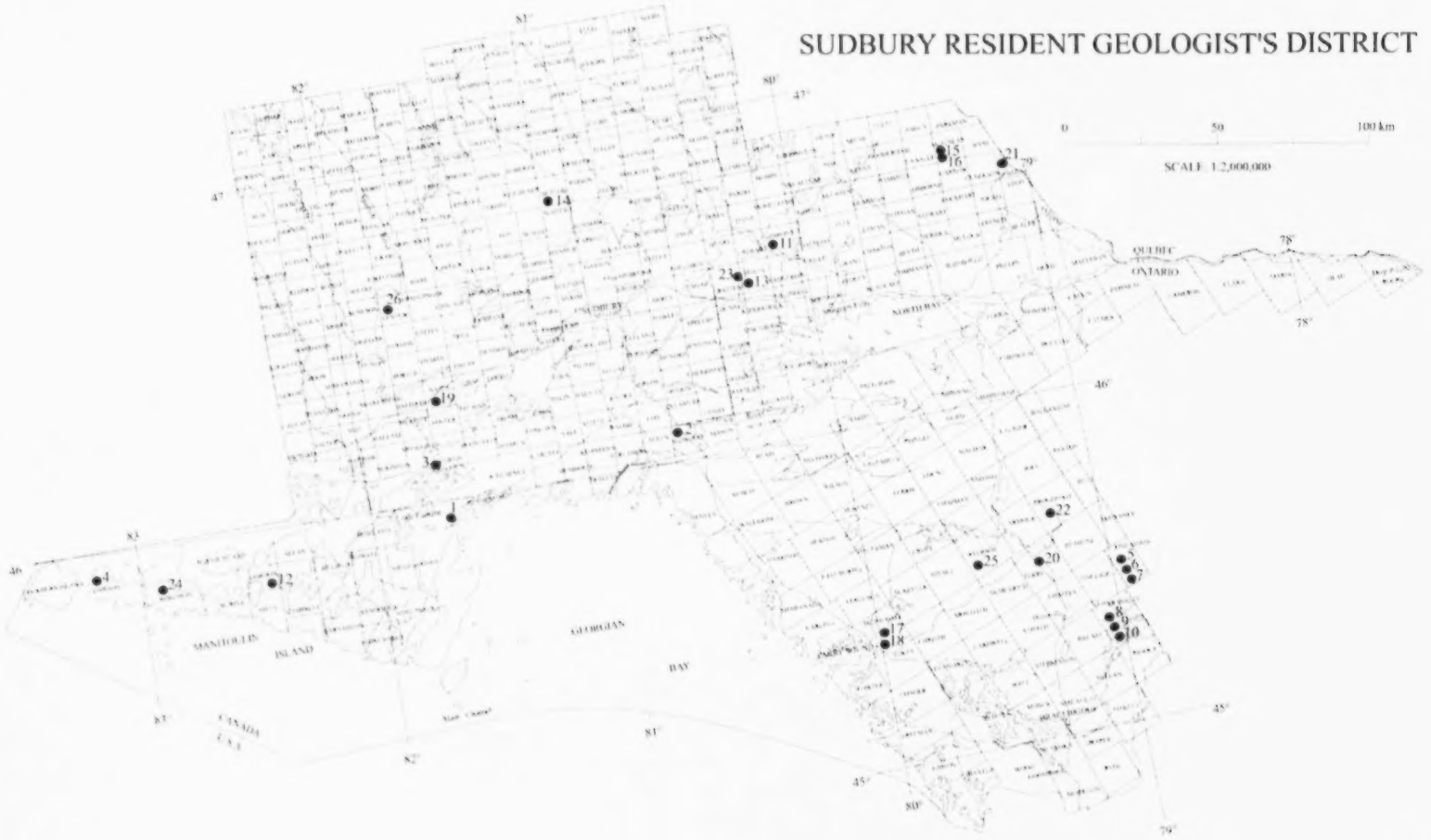


Figure 2. Industrial mineral and dimension stone producers (keyed to Table 5).

Table 5. Industrial mineral and dimension stone producers in the Sudbury Mining Division in 2004 (keyed to Figure 2).

No.	Township / Area	Company / Individual	Commodity
1	Badgeley Island	Unimin Canada Ltd.	Silica
2	Bigwood	Allstone Quarry Products Inc.	Landscape Stone
3	Curtin	Inco Ltd.	Silica
4	Dawson	Lafarge Canada Ltd.	Dolomite
5	Finlayson	Fraser Quarry	Flagstone
6	Finlayson	McDonald Quarry	Flagstone
7	Finlayson	Tasso Lake Stone	Flagstone
8	Franklin	Algonquin Stone	Flagstone
9	Franklin	Boothby Quarry	Flagstone
10	Franklin	Birkendale Granite	Flagstone
11	Gibbons	Upper Canada Stone Company Ltd.	Landscape Stone
12	Gordon	Canadian Colour Rock Inc.	Flagstone
13	Hugel	Rintala Construction Company Limited	Landscape Stone
14	Hutton	Renger Resources Limited	Railway Ballast
15	McAuslan	Callandar Industries Ltd.	Veneer Stone
16	McAuslan	McLaren's Bay Mica Stone Quarries	Masonry Stone
17	McDougall	Fowler Construction Company Limited	Flagstone
18	McDougall	Mill Lake Stone Quarry Ltd.	Flagstone
19	Nairn	J. Owen Development Ltd.	Armour Stone
20	Perry	Cushman Stone and Gravel	Flagstone
21	Poitras	Thorne Brilliant Stone Quarry	Masonry Stone
22	Proudfoot	Rock Lake Quarry	Flagstone
23	Ratter	Crea-Mac Contracting Company Ltd.	Decorative Stone
24	Robinson	Colonial Brick and Stone	Flagstone
25	Ryerson	Ted Boyes and Sons Construction Limited	Flagstone
26	Venturi	Agricultural Mineral Prospectors	Organic Fertilizer

AGRICULTURAL MINERAL PROSPECTORS INCORPORATED

This company continued its fifth year of seasonal operations producing vermiculite and calcite from the Burns Mine in Venturi and Tofflemire townships. The material is derived from a weathered regolith overlying the Spanish River Carbonatite Complex.

The product is marketed as an agricultural mineral fertilizer and soil conditioner with certified organically produced and conventionally produced crops. The average mineral composition is 70% calcite, 10% apatite, 15% biotite / vermiculite, and 5% accessory minerals. Present markets include Ontario, Michigan, Quebec, Vermont, Pennsylvania, and New York State.

In 2004, approximately 4000 tons were removed from a small pit. To date, the total production is approximately 17 000 tons (J. Slack, Agricultural Mineral Prospectors Incorporated, personal communication 2005).

INCO LIMITED—LAWSON QUARRY

Inco Limited produced high-purity silica from Paleoproterozoic quartz arenite of the Huronian Supergroup at its Lawson Quarry in Whitefish Falls. The material is used as flux at the Inco Limited Copper Cliff smelter. Production statistics are confidential.

LAFARGE CANADA INCORPORATED—MELDRUM BAY OPERATIONS

Lafarge Canada Incorporated quarried approximately 5 million tons of dolostone from its Meldrum Bay quarry in Dawson Township, on the western end of Manitoulin Island. Massive Paleozoic dolostone is excavated in a single lift approximately 50 feet high. The material is classified as 70% construction aggregate and 30% metallurgical grade flux. Lake freighters ship the material to markets in southern Ontario and the United States (M. Wickett, Lafarge Canada Incorporated, personal communication, 2004).

RENGER RESOURCES LIMITED—MOOSE MOUNTAIN OPERATIONS

Renger Resources Limited crushed, sorted, and shipped 10 000 tons of low-grade iron ore from the former Moose Mountain Mine in Hutton Township, down from 100 000 tons in 2003.

The material is from an unprocessed stockpile that remained after the mine ceased operations in 1981. It is shipped by truck to the Canadian National Railway Company siding at Milnet, where it is loaded into maintenance-of-way hopper cars for use as railway ballast. The railway is decreasing its reliance of smelter slag due to perceived environmental concerns (N. Gervais, Renger Resources Limited, personal communication, 2005).

UNIMIN CANADA LIMITED—BADGELEY ISLAND SILICA

Unimin Canada Limited produced approximately 500 000 tons of high-grade silica from Bar River Formation quartz arenite of the Paleoproterozoic Huronian Supergroup on Badgeley Island. The material is shipped to Midland, Ontario, and Ashtabula, Ohio, for further processing (Cosec et al. 2004).

ADVANCED EXPLORATION

Advanced exploration focussed exclusively on nickel-copper-platinum group element projects associated with the Sudbury Igneous Complex. Advanced exploration and development were also conducted on most underground mining operations as part of individual mine plans. A few significant projects are highlighted below.

Falconbridge Limited—Nickel Rim South Deposit

Falconbridge Limited announced early in 2004 that it is commencing a 5-year, $368 million program at the Nickel Rim South deposit for underground definition drilling. Inferred resources at the deposit are 13.2 Mt averaging 1.7% Ni, 3.5% Cu, 0.04% Co, 0.8 g/t Au, 1.9 g/t Pt, and 2.2 g/t Pd. Production is expected to start in 2008 (*Canadian Mines Handbook, 2004-05*).

Site preparation, services, and development of electrical services were completed in 2004. Shaft sinking is expected to begin in the first quarter of 2005 (Falconbridge Limited, Annual Report for 2004, February 2005).

Falconbridge Limited—Fraser Morgan Deposit

Underground diamond drilling at the Fraser Morgan deposit has updated the indicated mineral resource to 4.9 Mt at 1.8% Ni and 0.6% Cu, with an inferred mineral resource of 2.1 Mt at 1.8% Ni and 0.5% Cu. Underground diamond drilling will continue in 2005. The deposit is accessible from Fraser Mine infrastructure (*The Sudbury Star*, February 2, 2005).

FNX Mining Company Incorporated—PM Deposit (McCreedy West Mine)

Assay results from 4063 tons extracted from the bulk sample test area off the PM exploration ramp graded 6.8 g/t Pt+Pd+Au, 1.4% Cu and 0.4% Ni. An additional 1000 tons of material from this area will be extracted and processed through the Sudbury Joint Venture (SJV) sample tower. All of the material from this initial bulk sample will be batch tested for metallurgical purposes. This bulk sample was extracted from the first cross cut off the exploration ramp and is the first of 4 planned bulk sample test areas from the PM deposit. Three additional bulk samples will be collected from cross cuts further down the exploration ramp.

An additional 3933 tons extracted from the western edge of the PM deposit and within the exploration ramp graded 0.8% Cu, 0.2% Ni, and 2.8 g/t Pt+Pd+Au. This area was not one of the planned bulk sample test areas but was extracted, processed through the sample tower, and assayed to provide material for preliminary metallurgical testing and to determine if the deposit contained any deleterious material. The results of the metallurgical tests are pending.

The PM exploration ramp is designed to cut across the strike of the PM deposit into selected mineralized areas identified by drilling. A total of four, 4000 to 5000 ton samples will be collected and processed using the SJV sample tower.

A sampling program is being conducted in the ramp and bulk sample areas to develop sampling protocols and grade control systems for future mining operations. This sampling program includes assaying of underground development drill cuttings, muck samples from each blasted round, and drill core from underground definition drilling. Results from these sampling tests along with surface and underground drilling data will be compared against the assays from the bulk samples in order to improve sampling protocols and grade control. In addition, the bulk sampling and geological mapping will provide key data to be used to determine the distribution and continuity of the PM deposit mineralization and in selecting the optimum mining method (bulk or selective stoping) for the deposit.

In a separate program, the SJV has begun preliminary metallurgical testing of PM deposit mineralization. Two composite drill core samples were submitted to SGS Lakefield Research Limited for grinding and flotation test work and for mineralogical analyses. The preliminary results are favourable and indicate metal recoveries that are similar to, or better than, normal for Sudbury Igneous Complex copper+platinum+palladium+gold footwall-type deposits. The mineral associations are characteristic of footwall Cu-vein systems in the Sudbury North Range and no significant deleterious material has been detected.

The PM deposit is a large Sudbury Igneous Complex copper+nickel+platinum+palladium+gold footwall-type deposit extending from the 900-foot level to the 2200-foot level. It is approximately 1500 feet long by 1000 feet wide and varies from tens of feet to over 150 feet in true thickness. The PM deposit is open in several directions including down-dip, to the east and west, and up-dip into the 950 deposit. The PM mineralization consists of platinum+palladium+gold-enriched massive to stringer to disseminated sulphides dominated by chalcopyrite with lesser amounts of pyrrhotite, pyrite and millerite. Refer to Figure 3.

FNX Mining Company Incorporated—Podolsky (Norman) Property

A $30 million advanced underground exploration program at the Podolsky property in Norman Township commenced in September 2004 with initial excavations of the vertical shaft and inclined ramp to 2000 feet below surface. It is hosted in an Offset Dike environment. The ratio of palladium:platinum:gold is 3:3:2 (P. Lewis, FNX Mining Company Incorporated, personal communication, 2005).

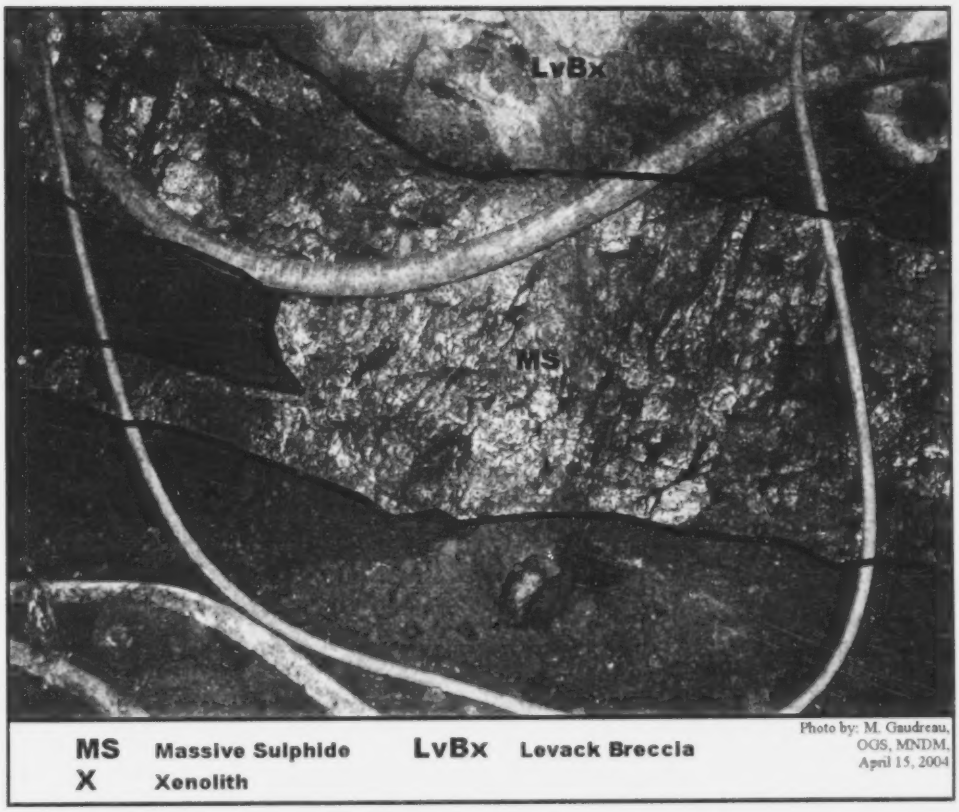


Figure 3. FNX Mining Company Inc. / Dynatec Corp. McCreedy West Mine, Levack Township. Typical footwall-style, high grade copper + PGE mineralization. Scale 1:6.

Inco Limited—McCreedy–Coleman Mine (170 Zone)

Underground exploration diamond drilling continued on the 170 Zone footwall, high-grade precious metals deposit at what was previously referred to as the McCreedy East Mine and Lower Coleman Mine, located in Levack Township.

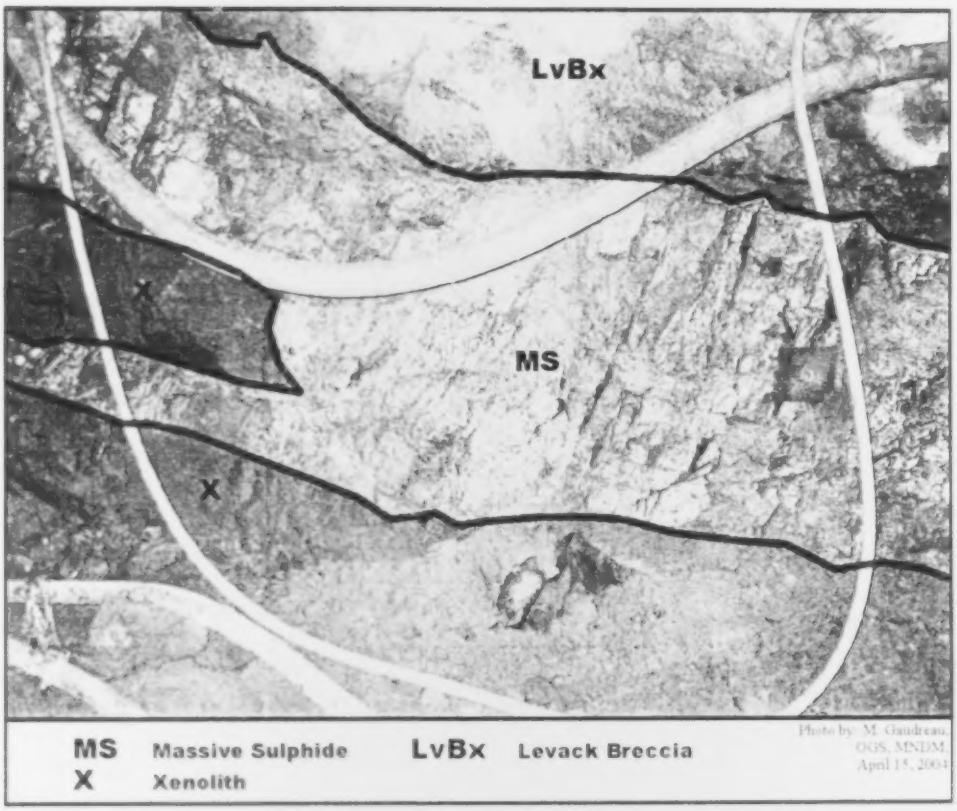
Drilling and follow-up evaluations resulted in an additional 200 000 tonnes, bringing probable reserves of this deposit to 1.8 Mt grading 7.0% Cu, 0.9% Ni, and 15.1 g/t Pt+Pd+Au. This project is expected to increase the total mine production by over 60% by early 2005 (*Canadian Mines Handbook, 2004-05*).

Inco Limited—East Range

An extensive surface diamond-drilling and down-hole geophysical exploration program that was initiated in 2003 continued in 2004 near Ella Lake in Capreol Township. The project site is an area where new surface footwall-style mineralization has recently been discovered.

Inco Limited—Creighton Deep Project

Underground development work continued on the first phase of the Creighton Deep project at the Creighton Mine in Creighton and Snider townships. Development of the second production level at the 7680-foot level is expected to be completed by 2006, with a production rate of 300 000 tonnes per year until 2015.



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In 2004, the second phase of development was evaluated to access additional orebodies of the Creighton Deep deposit. Estimated reserves that could be accessed in this second phase are 4.0 Mt averaging 3.7% Ni and 3.9% Cu between the 7680-foot level and the 8220-foot level. This estimate includes an additional 660 000 t ore grading 4.0% Ni and 5.1% Cu in a high-grade footwall zone (*Canadian Mines Handbook, 2004-05*).

EXPLORATION ACTIVITY

Aurora Platinum Corporation

Aurora Platinum Corporation has several properties in the Sudbury basin, including the Foy, Footwall, North Range, and Nickel Lake properties. The Foy and Footwall properties are optioned from, or joint ventured with, Falconbridge Limited and the Nickel Lake property is optioned from Inco Limited.

Foy Project

The Foy project is located 30 km northwest of the City of Sudbury along the North Range of the Sudbury Igneous Complex (SIC). It covers the Foy Offset Dike for a strike length of 10.5 km.

Footwall Project

The Footwall project is located 15 km northeast of the City of Sudbury in Falconbridge Township, along the South Range of the SIC. The project area covers an 8 km strike length of the SIC between the Garson and Norduna nickel-copper-PGE mines. The Footwall project covers both marginal South Range and footwall/structural deposit environments. Falconbridge Limited is the operator of this project and a compilation program of all mine records, and geological, geochemical, and geophysical data is ongoing.

North Range Project

The North Range project is located 30 km northwest of the City of Sudbury. The North Range Project claims are contiguous with the Foy Project claims, covering footwall breccia rocks of the SIC.

Nickel Lake Project

The Nickel Lake project is located 30 km north-northwest of the City of Sudbury along the North Range of the SIC. The property covers the Foy Offset Dike from Nickel Lake in the east to Foster Lake in the west (1.4 km strike length). Several anomalies, determined from airborne geophysical surveys, extend in an intermittent fashion along the entire length of the Nickel Lake–Foster Lake corridor.

Diamond drilling on the Nickel Lake property in 2003-2004 followed up on a high-grade intersection reported from hole NI-15, in which a zone of massive sulphide from surface to 17.87 m graded 1.69% Ni, 0.43% Cu, 0.07% Co, 0.23 g/t Au, 0.64 g/t Pt, and 0.88 g/t Pd (Aurora Platinum Corporation, press release, February 12, 2003).

Diamond drilling in the summer of 2004 encountered intermittent, semi-massive sulphides with localized massive sulphide blebs. Length-weighted average assay results from Hole NI-25 returned values of 0.77% Ni, 0.87% Cu, and 425 ppb Pt+Pd+Au over a 40.7 m interval, including a 10.6 m interval of 1.03% Ni, 0.78% Cu, and 537 ppb Pt+Pd +Au, and a 4.7 m interval of 1.34% Ni, 0.53% Cu, and 613 ppb Pt+Pd+Au. Mineralization consisted of typical Sudbury Offset-type inclusion bearing sulphides.

Holes NI-21, NI-22, NI-25, and NI-25a all intersected the modelled conductor, confirming the presence of sulphides over a vertical extent of 305 m. Wedge hole NI-25a was drilled to undercut the semi-massive sulphide intersection of NI-25 and to probe the constriction of the Foy Offset Dike caused by the inflection or flattening of the dike's footwall (changes in dike geometry are considered favourable sites for sulphide deposition in the Sudbury Igneous Complex). The borehole was also designed to test the bottom portion of the strongly conductive, off-hole BHUTEM response detected within hole NI-24.

Drilling and borehole electromagnetic surveys to date have established a conductive trend along the hanging wall of the dike that extends for approximately 100 m in strike and 400 m in depth, but remains open in all directions (Aurora Platinum Corporation, various press releases, 2004).

Claim Lake Resources Incorporated—Marten Diamond Project

The Marten diamond property is in the centre of an area currently undergoing active diamond exploration by several companies in the Marten River area, south of Temagami. The Temagami area represents a new, relatively unexplored kimberlite-bearing region of the Canadian Shield that has the potential to yield economic deposits of diamonds. Extensive airborne and ground geophysical surveys, till geochemical surveys, and indicator mineral chemistry analyses have recently been completed in the region. Claim Lake Resources has 100% ownership of 2 large claim blocks comprising 107 claim units in Milne and Askin townships. The claims lie south of the Kirkland Lake kimberlite cluster in an area where additional kimberlites are predicted to occur.

Recent work in the area identified 3 highly significant kimberlite indicator mineral anomalies within 5 km in a down-ice direction from the Marten diamond property. The anomalies consist of pyrope garnets with chemical compositions that plot in the high Kr-low Ca portion of the G-10 field, and chromites that plot in the diamond inclusion and intergrowth field. Both garnets and chromites are kimberlitic and were formed in the diamond stability field.

A 2002 airborne magnetometer-EM geophysical survey flown over the property outlined 14 geophysical anomalies. During 2004 a high resolution, total field airborne tri-axial magnetic gradiometer survey revealed numerous circular anomalies that may be indicative of kimberlite pipes. Follow-up ground geophysical surveys, till, stream and soil geochemical sampling, mapping, and prospecting have been completed and interpretation of the data is ongoing.

Continued interest in the area is the result of favourable kimberlite indicator mineral chemistry from numerous sites, a favourable geological and structural setting and a location that is close to mining infrastructure with significantly lower exploration and development costs than those in the far north. The property lies in part of the Archean Superior Craton and extends south across deep-seated faulting associated with the Grenville Front Deformation Zone (Claim Lake Resources Incorporated, various press releases, 2004).

Crowflight Minerals Incorporated

Crowflight Minerals Incorporated holds several properties proximal to the Sudbury Igneous Complex (SIC). These include the AER-Kidd property, located on the Worthington Offset Dike near Inco's Totten deposit and McIntyre project; the Airport property, located on the southeast rim of the SIC about 1.2 km east of Falconbridge Limited's past producing Norduna Mine; and the Peter's Roost, Marble Mountain, and Copenhagen properties, acquired in 2004 and late 2003, which occur along the North Range of the SIC from the Parkin Offset Dike to beyond the Foy Offset Dike area. The company also negotiated an option on a 102 ha patented claim containing the Mystery Offset Dike in Lorne Township.

AER-Kidd Property

Crowflight controls about 2 km of the Worthington Offset Dike within a land position covering 280 ha. The first hole drilled into the Worthington Offset intersected disseminated sulphide mineralization. This hole, drilled near the AER-Kidd/Inco Totten boundary, targeted a previously known intersection drilled in the mid-1960s. The borehole intersected 80 m of the Worthington Offset Dike containing over 40 m of mineralized quartz diorite. All mineralization occurs within the quartz diorite offset in massive lenses of nickel-rich sulphide surrounded by copper-rich stringer mineralization within a wider disseminated sulphide halo. Detailed field mapping along the western boundary adjacent to Inco's Totten property revealed the presence of massive chalcopyrite veins. A 13 000 m, 22-hole diamond-drilling program commenced in early 2004. Geophysical surveys performed in 2004 provided down-hole Transient Electromagnetic (BHTEM) and ground Audiofrequency Magnetotelluric (AMT) data which were used to further define the extent of mineralization and to develop additional drill targets at depth. Deep (>1 km) drilling of 3 diamond-drill holes under Perch Lake began in June 2004. Results have not been reported at the time of writing.

Airport Property

The Airport property, a 50/50 joint venture with Millstream Mines Limited, received attention in its northern sector after a deep-penetrating IP geophysical survey was conducted. FUGRO Airborne Surveys was scheduled to perform a MEGATEM II survey during the late summer of 2004; however, no data have been reported to date (Crowflight Minerals Incorporated, press release, March 4, 2004).

Marble Mountain Prospect

The Marble Mountain prospect was optioned in late 2003. The 2000 ha package covers a 6.5 km strike length of sulphide-mineralized quartz diorite thought to be the western extension of the Parkin Offset Dike. Work by Crowflight exploration personnel identified a potentially significant extension of the dike along a west-northwest-trending radial offset dike. Mineralization is also widespread in quartz veins occurring in quartzites and marbles south of the quartz diorite. An airborne EM survey was scheduled to begin in April; however, no data have been released to date (Crowflight Minerals Incorporated, press release, March 4, 2004).

Peter's Roost Property

The Peter's Roost property is a major land package on the North Range of the Sudbury Igneous Complex covering 14 830 ha in 927 claim units in Hutton, Kitchener, Tyrone, Leinster, Creelman, Roberts and Botha townships, and encompassing the Copenhagen property in Hutton and Kitchen townships. The property extends from the Marble Mountain option in the east to beyond the Foy Offset Dike in the west, a distance of more than 40 km. Data from airborne MEGATEM II and magnetic surveys were combined with the results of a lineament and alteration study over the area to assist in the identification of massive magmatic sulphide targets. The company plans to follow up with detailed ground geophysical surveys (Transient EM and Magnetotelluric) along with prospecting, mapping, and sampling (Crowflight Minerals Incorporated, various press releases, 2004).

JML Resources Limited

JML Resources Limited's Scadding gold property is located approximately 50 km northeast of Sudbury in Scadding Township. The 256ha-property saw limited production of 140 000 tons grading 0.21 ounces per ton gold during the 1980s from 4 shallow zones on the property. Gold mineralization occurs with iron-rich sulphides, in east trending, chlorite-rich, brecciated shear zones. Alteration of the host rocks includes carbonatization and albitization.

JML completed an eleven hole, 1405 m, first phase diamond drilling and geophysics campaign in the North Target zone and the East West zone during 2003. These zones encompass two of four known gold occurrences on the property. The program was designed to further test the existence, continuity, and grade of gold, as well as the thickness of the host stratigraphy. The geophysical program included a detailed ground magnetic survey as well as induced polarization (IP) surveys. The survey results identified an extension of the known zones, as well as additional targets in the remaining two zones for the next phase of diamond drilling.

A seven hole diamond drilling program was completed in 2004, targeting the two remaining zones, the 16 Zone, located west of the past producing Central Zone, and the extension of the East-West Zone where a prominent IP geophysical anomaly was identified.

JML drilled 3 holes targeting the 16 Zone. One of the drill holes intersected 4.17 g/t Au across 4.0 m. The remaining holes failed to intersect significant gold values.

Drilling east of the East-West Zone open pit targeted a 250 m long IP anomaly. Drilling intersected a sulphide breccia zone containing primarily pyrite associated with albite, carbonate, and chlorite alteration. The four holes drilled on this zone returned no significant gold values (JML Resources Limited, press release, July 9, 2004).

Mustang Minerals Corporation

Mustang Minerals has focused primarily on the acquisition and exploration of high potential nickel-copper-PGE properties in the Sudbury area. These include the Hyman Township nickel property, the Nairn Township nickel property, the East Bull Lake and River Valley properties, and the Manchester Offset Dike property.

Manchester Nickel Property

The 567 ha Manchester Offset Dike property was optioned from Inco Limited. The property includes a 2.5 km section of the Manchester Offset Dike, 1 of 3 known offset dikes on the South Range of the Sudbury Igneous Complex. Intermittent exploration by Inco in the 1970s included a reconnaissance diamond-drilling program, which intersected nickel mineralization in several drill holes. Phase 1 drilling by Mustang was undertaken to test for nickel

and platinum group metals in areas where mineralization was previously encountered. A comprehensive geophysical program as well as reinterpretation of all historical geophysical data was completed by Quantec Geoscience. A second phase diamond-drilling program over the offset dike provided the following highlights: 3.06% Ni over 0.36 m and 6.04 g/t Pt+Pd+Au over 2.0 m in a mineralized zone within the Manchester Offset Dike. Down-hole geophysics results suggest that the mineralized zone is open to depth.

Mustang is encouraged by the results of the program and plans additional geophysical surveys in 2005, which will be followed by drilling to outline potential zones of mineralization at depth.

Pacific North West Capital Corporation

Pacific North West Capital Corporation (PFN) is an exploration company focused on the discovery of platinum group elements. PFN is currently exploring the Paleoproterozoic River Valley and Agnew Lake projects, both joint ventured with Anglo American Platinum Corporation Limited (AMPLATS). PFN is the operator on both projects (www.pfncapital.com).

River Valley

The PFN River Valley property covers 54 km^2 in Dana Township and in the southwest corner of Pardo Township, about 20 km by road northwest from the village of River Valley. The property covers most of the northern portion of the River Valley Intrusion (RVI) and represents the largest single land holding and exploration budget for all properties held by PFN in the Sudbury District.

The River Valley property is underlain by rocks of the RVI, a large, layered, mafic intrusion that consists primarily of pyroxenite, melagabbro, gabbro, and leucogabbro with subordinate anorthosite, gabbronorite, and troctolite. The property covers most of the northern contact of the River Valley Intrusion and all of a northern offshoot of the main body of the intrusion. Most of the known mineralization occurs as disseminated and bleb sulphides (chalcopyrite dominated) within a heterogeneous rock package that is proximal to the country rocks or margin of the intrusion. This heterogeneous rock package includes melanocratic to leucocratic breccias and pegmatitic to varitextured breccia zones. At the close of 2004, the north contact of the mineralized breccia had been traced over a distance of 15 km.

The River Valley property includes 3 main mineralized areas with anomalous PGE-copper-nickel sulphide mineralization, namely, the Dana Lake, Lismer's Ridge, and Azen Creek areas. The Dana Lake area lies within a north-trending portion of the RVI containing steeply dipping, modally layered rocks overlying the contact-related, mineralized breccia unit. About 1.3 km to the southeast, Lismer's Ridge appears to be located within a similar geological setting; however, the rocks are more foliated and contain more chlorite-actinolite alteration. The Azen Creek area, located about 6 km southeast of the Dana Lake area, is thought to be stratigraphically higher in the intrusion than the mineralized breccia of Dana Lake and Lismer's Ridge (Sudbury District Geologist Office Assessment File #Dana-SP038).

A revised (to NI 43-101 standards) *in situ* mineral resource estimate completed by Derry, Michener, Booth & Wahl Consultants Limited, to the end of April 2004, provided the following approximation, based upon a 0.7 g/t Pt+Pd cut-off:

Measured and Indicated Resources (Dana and Lismer's Ridge).

	Grade (per 25.4 million tonnes)	**Contained Ounces**
Palladium	0.98 g/t	798 300
Platinum	0.34 g/t	273 200
Gold	0.06 g/t	49 700

The newly discovered Lismer Extension Zone lies 400 m southeast along strike from the mineral resource reported in the Dana zones, and 400 m northwest of the Lismer Zone. It is 1 of 9 target areas along the northern contact of the RVI. The first hole, LR-126, intersected 34 m of mineralization assaying 1.68 g/t Pt+Pd+Au, including 5.69 g/t Pt+Pd+Au over 3 m.

Several more high-grade intercepts have been intersected in the current diamond-drilling program, including 23 m averaging 1.7 g/t Pt+Pd+Au in hole LR-129. Results to date have defined a mineralized zone approximately 30 m wide to a depth of at least 200 m, containing higher grades over significant widths (e.g., 13 m averaging 2.34 g/t Pt+Pd+Au in hole LR-129). Eight additional holes have now been drilled in the Lismer Extension zone, all aimed at determining the trend and depth extent.

At the present time, the company is nearing completion of their $3 million Phase 7 exploration program (April 2004 to April 2005), which includes airborne and ground magnetic surveys, a 40 tonne bulk sample, metallurgical testing, and 15 000 m of diamond drilling.

Agnew Lake

The Agnew Lake property is located in Shakespeare, Dunlop, Shibananing and Gough townships, approximately 60 km west of Sudbury, and is underlain by the Agnew Lake Intrusion. This mafic body is similar in age and composition to the River Valley and East Bull Lake intrusions and contains substantial PGE values in magmatic breccias close to the intrusive contact. The Agnew Lake Intrusion is exposed as a crudely elliptical body measuring roughly 10 by 6 km, with its long axis trending east-southeast.

Granitic rocks of the Algoma Plutonic Domain host the complex, and the Paleoproterozoic Matinenda Formation conglomerate of the Huronian Supergroup overlies the intrusion. Post-emplacement faulting and late emplacement of mafic dikes and sills generally obscure the contact relationships at the base and along the exposed margin of the complex. The Agnew Lake Intrusion is connected to the East Bull Lake Complex by the Streich Dike, which is generally interpreted as the initial feeder to both intrusions (Vogel 1996).

AMPLATS can earn a 49.5% interest in the property by funding $6 million in exploration, and can increase this interest to 60% by completing a feasibility study and providing production financing (Pacific North West Capital Corporation, press releases, 2004).

Romios Gold Resources Incorporated

Romios Gold Resources Incorporated acquired 72 unpatented mining claim units covering 1166 ha in Baldwin and Shakespeare townships early in 2004. The property is underlain in part by a body of gabbroic intrusive rocks, one of several layered Paleoproterozoic mafic intrusive rocks occurring along the Southern–Superior Province boundary in the Sudbury area. Elsewhere the base of this unit is known to host structurally controlled, disseminated and massive sulphides that are enriched in copper, nickel, platinum, palladium, and gold. A number of copper occurrences within a basal, brecciated quartzite occur on the property along the contact with a gently dipping gabbro sill.

The company also holds 6330 ha in McKinnon and Mongowin townships near Espanola, known as the Sudbury West Basin property. The property's main feature is a large, oval, basin-like geological structure that includes a gabbroic unit that contains notable amounts of copper and nickel.

An airborne magnetic and electromagnetic (EM) survey was flown over the Baldwin–Shakespeare property and selected portions of the company's Sudbury West Basin property during the summer of 2004. The survey outlined 4 areas of anomalous conductivity that correlated with well-defined magnetic trends. Preparatory to initiating a diamond-drilling program, Romios carried out ground HLEM surveys over 3 of the airborne-detected anomalies (Romios Gold Resources, press release, July 16, 2004).

Nine drill holes totalling 1095 m were drilled to test a number of the EM and magnetic anomalies outlined in the surveys. Most of the drill holes intersected zones of sulphide mineralization consisting essentially of pyrrhotite with subordinate chalcopyrite.

The highest platinum group element assays were intersected in holes BP-04-08 and BP-04-09, which returned 58 ppb over 0.63 m and 46 ppb over 0.75 m, respectively. The most significant copper mineralization, associated with an irregular quartz vein, was intersected in hole BP-04-08, where a 0.63 m interval assayed 7.3% Cu. The same sample contained .017 ounces per ton gold. In hole BP-04-03, 2 zones of mineralization were intersected, one assaying .028 ounces per ton gold over 0.59 m and the other .027 ounces per ton gold over 0.51 m (Romios Gold Resources Incorporated, press release, November 19, 2004).

Romios also completed a 584 line-km, airborne MEGATEM magnetic and EM survey over their 6329.5 ha Sudbury West Basin project in McKinnon and Mongowin townships early in 2004. Four zones of enhanced surface conductivity were identified as areas of interest. Follow-up ground magnetic, HLEM (MaxMinII) and induced polarization (IP) surveys were performed on these 4 zones (Romios Gold Resources Incorporated, press releases, July 16, 2004 (www.romios.com).

Ursa Major Minerals Incorporated

URSA Major Minerals Incorporated's Sudbury area projects are located in Shakespeare, Porter, Baldwin, Dunlop, and Hyman townships, comprising approximately 502 claim units, covering 8032 ha. Of this, 73 claim units form the Shakespeare–Falconbridge joint venture in which URSA Major, as operator, has earned a 75% interest from Falconbridge Limited, subject to certain back-in rights held by Falconbridge. URSA has a 100% interest in an additional 486 claim units contiguous to the Shakespeare property. These claims, acquired by staking or option agreement, cover a 15 km strike length extending from the Shakespeare deposit toward the Sudbury Igneous Complex. The company has also acquired the past-producing Agnew Lake uranium mine through staking.

Shakespeare Joint Venture

The Shakespeare property hosts nickel-copper-PGE mineralization in a mafic dike. A sample submitted to the Geochronology Laboratory of the Royal Ontario Museum yielded an age of 2217 Ma. This age is significantly older than the age of the SIC (1840 Ma), yet similar in age to Nipissing diabase suite rocks (2219 Ma). Based on exploration at the Shakespeare deposit, the company has developed an exploration model for nickel-copper-PGE mineralization in Nipissing intrusive rocks in disconformable contact with the southern boundary of the Algoma Plutonic Domain (ca. 2675 Ma).

Drilling to February 2004 on the Shakespeare property has outlined an indicated resource of 12.0 Mt grading 0.35% Ni, 0.3% Cu, 0.02% Co, 0.19 g/t Au, 0.34 g/t Pt, and 0.38 g/t Pd.

URSA Major has completed a pre-feasibility study at the Shakespeare deposit, completed by Micon International Limited. Micon evaluated a 2900 tonne per day open-pit operation with truck haulage to the Falconbridge Limited Strathcona Mill.

Exploration of the Shakespeare property is proceeding on the basis of an URSA Major – Falconbridge joint venture, with URSA Major as the project operator. URSA Major's 75% interest in the property will increase to approximately 80% at the end of the current program. (URSA Major Minerals Incorporated, press releases, 2004.)

Agnew Lake Area

During the year, the company completed geophysical surveys, prospecting, geological mapping, and diamond drilling on this property. Results confirmed the presence of Shakespeare-style mineralization on the property. Spectral Induced Polarization, resistivity, and magnetometer surveys outlined several high-priority drill targets in favourable geological settings along strike to the east of the Shakespeare property. Drill hole U7-05, located over 6 km northeast of the Shakespeare deposit, intersected 4.6 m of core grading 0.09% Ni, 0.18% Cu, and 0.23 g/t precious metals. This mineralization is associated with disseminated chalcopyrite-pyrrhotite mineralization within a layered sill consisting of quartz diorite, gabbro, and melagabbro. While not of economic grade, the intersection demonstrates that rocks with similar characteristics and style of mineralization to the Shakespeare deposit are present on the property. The company intends to conduct further mapping, prospecting, and geophysical surveys on property contiguous to the Shakespeare project.

The past-producing Agnew Lake uranium mine, in Hyman Township, 40 km west of Sudbury, was operated by Kerr Addison Mines Limited between 1977 and 1983. A total of 1.1 million pounds of U_3O_8 were produced from 3.1 million tons of ore. The underground mine was developed to a depth of 958 m. Uranium was produced from leaching of underground and surface stockpiles. At the end of 1982, the Agnew Lake Mine had reserves of 8.9 million tons containing 7.2 million pounds of U_3O_8 (at 0.81 pounds U_3O_8 per ton)(*Canadian Mines Handbook*, 1983-84).

URSA Major has 34 claim units (550 ha) that cover over 1 km of the favourable uranium-mineralized horizon. At Agnew Lake Mine, uranium mineralization is contained within a pyritic quartz-pebble conglomerate that unconformably overlies granitic rocks and is similar to uranium mineralization in the Elliot Lake deposits (URSA Major Minerals Incorporated, press releases, 2004).

Wallbridge Mining Company Limited

Wallbridge Mining Company Limited currently has 24 properties on the footwall contact of the Sudbury Igneous Complex (SIC) including the Windy Lake, Milnet, Cascaden, Trill, Worthington, and Wisner properties. In total, these properties cover over 250 km^2 in the vicinity of the SIC. Wallbridge's Sudbury area properties are the basis for joint venture agreements with Lonmin Plc. (18 properties) and Falconbridge Limited (5 properties). In May 2004, a $3.7 million budget was approved for Sudbury area exploration projects.

Wisner Property

The Wisner property is located on the North Range of the Sudbury Basin, in Wisner and Bowell townships. Both Falconbridge and Lonmin are joint ventured with Wallbridge on different parts of the property. During fieldwork in the north-central part of the property in the fall of 2003, a near-surface zone of high-grade copper-platinum-palladium mineralization was discovered. Dubbed the Broken Hammer zone, the discovery contained both low sulphide, high PGE mineralization together with a very high-grade sulphide vein stockwork. The low sulphide style mineralization consists primarily of narrow fracture fills, stockworks, and disseminations of chalcopyrite ± magnetite-millerite and pyrite in a low sulphide-bearing unit. The high PGE rocks host values up to 15.81 g/t Pt+Pd+Au in material with very low sulphide content. A $1.8 million budget was allocated to the Wisner property in 2004. Work on the Broken Hammer zone was intensified during 2004, and included ground and airborne geophysical surveys, extensive stripping and channel sampling, and the completion of 30 follow-up diamond-drill holes.

Windy Lake

Geophysical survey data and a geological data model incorporated into a three-dimensional modelling tool indicate a trough within the Windy Lake embayment on the north rim of the SIC. A highly conductive anomaly is situated within this trough-shaped structure. Geochemical results from diamond-drill holes within the embayment contain anomalous (more than 0.3% Cu + Ni) values, with metal content increasing toward the conductive body. Delineation of this feature continued in the spring of 2004 with additional diamond drilling completed from Sugarloaf Island. Hole WWL-022 intersected 26.2 m of disseminated to locally net-textured sulphide mineralization from 1845.7 m to 1871.9 m. This interval averages 6% sulphides, with concentrations locally reaching 15%. Despite only minor copper and nickel values being present, these results confirm the presence of an east-west-trending mineralized trough or terraced structure under Windy Lake. A UTEM-4 down-hole geophysical survey did not identify any targets likely to represent economic massive sulphide accumulations within 200 m of the drill hole (Wallbridge Mining Company Limited, press release, May 21, 2004).

Trill and Cascaden Properties

The Trill property is a large footwall property that surrounds the Trillabelle embayment, while the Cascaden property covers the footwall rocks adjacent to Windy Lake.

Work over the past few years has located a number of IP anomalies worthy of follow-up on these properties. Work during the summer of 2004 focused on assessing these targets for their potential to host copper-PGE mineralization similar to that discovered at the Broken Hammer Zone on the Wisner property.

Milnet–Parkin and Frost Properties

The Milnet property is located on the Parkin Offset Dike, on the northeast corner of the Sudbury Igneous Complex. The Parkin Offset Dike may be a faulted extension of the Whistle Offset Dike, which hosts the Whistle Mine and FNX Mining Company Incorporated's Podolsky (Norman) project.

The Frost Lake property covers 1739 ha of footwall rocks on the East Range of the Sudbury Igneous Complex, approximately 4 km north of Falconbridge Limited's Nickel Rim Deep discovery.

Wallbridge plans metallurgical testing and a scoping study on the Parkin nickel-copper-PGE mineraiization toward a potential production decision. Work planned at Frost Lake will include a detailed IP survey over areas where PGE mineralization occurs at surface. This will be followed by drill testing of all favourable targets.

In November the company announced that $2.5 million had been approved for exploration in 2005, with the Wisner property designated the immediate focus of work. In addition to further drilling in the vicinity of the Broken Hammer Zone, several new targets defined by recent work will be tested (Wallbridge Mining Company Limited, press releases, May 21, 2004; November 15, 2004).

Table 6. Exploration activity in the Sudbury District in 2004 (keyed to Figure 4).

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARA ..... Airborne radiometric survey
Beep ..... Beep Mat survey
Bulk ..... Bulk sampling
DD ..... Diamond drilling
DDH ..... Diamond drill hole(s)
DGP ..... Down-hole geophysics
GC ..... Geochemical survey
GEM ..... Ground electromagnetic survey
GL ..... Geological survey
GM ..... Ground magnetic survey
GRA ..... Ground radiometric survey
Grav ..... Gravity survey
HLEM ..... Horizontal loop electromagnetic survey
HM ..... Heavy mineral sampling
IM ..... Industrial mineral testing and marketing
IP ..... Induced polarization survey
Lc ..... Linecutting
Met ..... Metallurgical testing
OD ..... Overburden drilling
ODH ..... Overburden drill hole(s)
OMIP ..... Ontario Mineral Incentive Program
OPAP ..... Ontario Prospectors Assistance Program
PEM ..... Pulse electromagnetic survey
PGM ..... Platinum group metals
Pr ..... Prospecting
RES ..... Resistivity survey
Samp ..... Sampling (other than bulk)
Seismic ..... Seismic survey
SP ..... Self-potential survey
Str ..... Stripping
Tr ..... Trenching
UG ..... Underground exploration/development
VLEM ..... Vertical loop electromagnetic survey
VLFEM ..... Very low frequency electromagnetic survey

	Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
1	Baldwin	F. Archibald	2003	GL, Lc, Tr, Samp	2.27026	SP021
2	Beaumont	J. Brady	2003	Samp, Tr	2.26577	SP003
3	Belfast	R. Comstock	2004	Pr	2.28118	SP004
3	Belfast	A. Adair	2004	Pr	2.28311	SP005
4	Bowell	Aurora Platinum Corp.	2002-2003	DD, Samp, Lc, AEM, AM	2.27496	SP012
5	Butler	G Shouinard	2004	Pr	2.27887	SP026
6	Butt	Vinecrest Management Services	2004	Lc, GEM	2.28336	SP046
7	Cascaden	Wallbridge Mining Company Ltd.	2002-2004	Lc, GL, IP, GM	2.27326	SP011
8	Curtin	D. Brunne	2004	GL, Samp	2.27616	SP027
8	Curtin	D. Brunne	2003	GDP, IP	2.27179	SP028

Township or Area		Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
9	Dana	Pacific North West Capital Corp.	2001-2002	GM, IP	2.26870	SP033
9	Dana	Pacific North West Capital Corp.	2004	GL, Samp	2.28347	SP034
9	Dana	Pacific North West Capital Corp.	2002	Lc, GM, IP	2.28532	SP035
9	Dana	Pacific North West Capital Corp.	2002	Str, Lc, GL, Samp, GM, IP	2.28567	SP036
9	Dana	Pacific North West Capital Corp.	2003-2004	GL	2.28566	SP037
10	Davis	Wolverine Resources	2003	Pr, Samp	2.27294	SP071
10	Davis	W. Sims	1989	AEM, AM	2.13111	SP072
10	Davis	Goldwright Explorations Inc.	2003	Pr, Samp	2.27811	SP073
11	Drury	Wallbridge Mining Company Ltd.	2004	Pr, Samp	2.27214	SP014
11	Drury	Falconbridge Limited	2004	DGP	2.28196	SP015
11	Drury	Wallbridge Mining Company Ltd.	2004	GL, Samp	2.28040	SP016
11	Drury	Wallbridge Mining Company Ltd.	2002-2004	GL, DGP, GM, IP	2.28080	SP017
12	Dryden	R. Fielding, T. Fielding	2003-2004	Str, Samp	2.28407	SP006
13	Dunlop	Pacific NW Capital Corp.	2002	Grav	2.27292	SP006
13	Dunlop	Pacific NW Capital Corp.	2002	DD, Samp	2.27856	SP007
13	Dunlop	Pacific NW Capital Corp.	2002	Lc, Grav	2.27883	SP008
14	Eddy	G. Shouinard, D. Lashbrook	2004	Pr	2.27930	SP001
14	Eddy	G. Shouinard, D. Lashbrook	2004	Pr	2.27929	SP002
14	Eddy	G. Shouinard, D. Lashbrook	2004	Pr	2.27927	SP003
14	Eddy	G. Shouinard, D. Lashbrook	2004	Pr	2.27850	SP004
15	Ermatinger	Wallbridge Mining Company Ltd.	2002	DD, Samp	2.27853	SP015
15	Ermatinger	Wallbridge Mining Company Ltd.	2002-2004	Lc, GL, Samp, GM, IP	2.27414	SP016
16	Falconbridge	Millstream Mines Ltd.	2003-2004	DD, Lc, IP	2.28106	SP035
16	Falconbridge	Wallbridge Mining Company Ltd.	2004	GL, Pr	2.28308	SP036

	Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
17	Flett	Randsburg International Gold Corp.	2004	AEM, AM	2.28037	SP010
18	Foster	G. Salo	2003	Pr, Samp	2.27535	SP021
19	Foy	Wallbridge Mining Company Ltd.	2002-2004	GL, Samp	2.27547	SP018
19	Foy	Aurora Platinum Corp.	2003-2004	DD, Samp	2.28168	SP019
20	Fraleck	Champion Bear Resources	2003	Pr, Samp	2.27230	SP007
21	Freeman	J. Melo, Allstone Quarry Products Inc.	2002-2004	Pr, Samp	2.27071	SP029
22	Garson	Wallbridge Mining Company Ltd.	2004	GEM	2.27984	SP006
23	Gooderham	Tres-Or Resources	2003	AEM, AM	2.26846	SP022
23	Gooderham	Tres-Or Resources	2003	AEM, AM	2.26844	SP023
23	Gooderham	Tres-Or Resources	2003-2004	GM	2.27550	SP024
24	Hart	Champion Bear Resources	2003	GL, Samp, GM	2.27018	SP019
24	Hart	Champion Bear Resources	2004	Grav	2.28205	SP020
25	Hess	Moncrieff Resources	2002-2003	SP	2.27617	SP036
25	Hess	Champion Bear Resources	2004	GL	2.27864	SP037
26	Hutton	J. Brady	2002-2003	GC	2.26006	SP056
26	Hutton	G. Barry	2004	Str, Tr	2.28656	SP057
27	Hyman	Mustang Minerals Corp.	2003	DD, Tr	2.27109	SP008
27	Hyman	Mustang Minerals Corp.	2003	GL, Samp	2.28034	SP009
28	Janes	W. Sims	2004	Pr, Samp	2.28131	SP029
29	Kelly	Goldwright Explorations Inc.	2004	AM, AEM	2.27571	SP021
30	Kenny	Tres-Or Resources Ltd.	2004	GEM	2.28294	SP001
31	La Salle	Tres-Or Resources Ltd.	2003-2004	DD, GM	2.27733	SP003
32	Loughrin	Wolverine Resources	2003	Pr, Samp	2.27409	SP017
32	Loughrin	W. Sims	1989	AM, AEM	2.13111	SP018
32	Loughrin	Wolverine Resources	2003	Pr	2.28132	SP019
33	Mackelcan	Flag Resources (1985) Limited	2003	DD, Samp	2.27128	SP029
33	Mackelcan	Flag Resources (1985) Limited	2003	DD, Samp	2.26708	SP030

Township or Area		Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
33	Mackelcan	Flag Resources (1985) Limited	2004	DD	2.27275	SP031
33	Mackelcan	Flag Resources (1985) Limited	2003	GL	2.27095	SP032
33	Mackelcan	Flag Resources (1985) Limited	2004	DD	2.27242	SP033
33	Mackelcan	Flag Resources (1985) Limited	2004	DD	2.28369	SP034
34	Maclennan	Falconbridge Limited	2004	GEM	2.27888	SP025
34	Maclennan	Cabo Mining Corp.	2004	Lc, Pr, GL	2.28353	SP026
34	Maclennan	Cabo Mining Corp.	2004	IP	2.28397	SP027
34	Maclennan	Wallbridge Mining Company Ltd.	2004	IP	2.28218	SP028
34	Maclennan	Wallbridge Mining Company Ltd.	2002	GL	2.27740	SP029
35	May	K. Guse	2002	DD	2.27711	SP005
35	May	D. Patric	2004	GL, Samp	2.28142	SP006
36	McCraney	Z. Mandziuk	2003-2004	GL, Str	2.28422	SP002
37	McKinnon	G. Daniels	2003	Pr, Samp	2.26703	SP016
38	Mongowin	E. Stringer	2004	GL, Samp	2.28675	SP025
39	Nairn	Mustang Minerals Corp.	2004	AEM	2.27667	SP005
40	Neelon	Alarie & Sons Ltd.	2003	VLFEM	2.27047	SP013
41	Norman	J. Brady, Namex Explorations Inc.	2003-2004	GC, Str, Samp	2.27039	SP043
41	Norman	J. Brady, Namex Explorations Inc.	2002-2003	GC	2.25988	SP044
41	Norman	Wallbridge Mining Company Ltd.	2004	Lc, IP	2.27835	SP045
41	Norman	A. Barry	2004	Str	2.28382	SP046
41	Norman	Platinum Group Metals Ltd.	2004	GL, Samp	2.28289	SP047
42	Parkin	Champion Bear Resources	2003	AEM	2.26827	SP080
42	Parkin	J. Brady, Namex Explorations Inc.	2003-2004	AEM, AM	2.26949	SP081
42	Parkin	J. Brady, Namex Explorations Inc.	2002-2003	Str, Tr, GL, Samp	2.25993	SP082
42	Parkin	J. Brady, Namex Explorations Inc.	2002-2003	VLFEM, Samp	2.26004	SP083

Township or Area		Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
42	Parkin	Champion Bear Resources	2003	Samp	2.27225	SP084
42	Parkin	Champion Bear Resources	2003	DD	2.27433	SP085
42	Parkin	Champion Bear Resources	2003	DD	2.26787	SP086
42	Parkin	Champion Bear Resources	2003	Lc, IP	2.26821	SP087
42	Parkin	Champion Bear Resources	2003	GL, Samp	2.27046	SP088
42	Parkin	Champion Bear Resources	2003	GL, Samp, GM	2.27050	SP089
42	Parkin	Champion Bear Resources	2003	GC	2.27412	SP090
42	Parkin	V. Boulard	2004	Lc	2.27599	SP091
42	Parkin	Champion Bear Resources	2003	Lc, Samp	2.27224	SP092
42	Parkin	Champion Bear Resources	2003	Lc, IP	2.27849	SP093
42	Parkin	V. Boulard	1998	Lc, Samp	2.18480, 2.18550	SP094
43	Parkman	C. Marmont, R. Thomas	2003	GM	2.26882	SP015
43	Parkman	C. Marmont, R. Thomas	2004	DD	2.27491	SP016
43	Parkman	C. Marmont, R. Thomas	2004	DD	2.27633	SP017
44	Porter	D. Brunne	2003	Str	2.27891	SP013
44	Porter	Pacific NW Capital Corp.	2004	GM, GEM	2.28291	SP014
45	Rathbun	Flag Resources (1985) Limited	2003	DD	2.27043	SP059
46	Scadding	R. Fielding	2003	Samp	2.26756	SP055
46	Scadding	JML Resources Ltd.	2003	GM, IP	2.27575	SP056
47	Shakespeare	M. Turcott	1996	GM, VLFEM	2.25068	SP013
47	Shakespeare	P. Blue	2003	Pr, Samp	2.27198	SP014
47	Shakespeare	Platinum Group Metals Ltd.	2002	DGP	2.27290	SP015
47	Shakespeare	Ursa Major Minerals Incorporated	2004	DD, Samp	2.27822	SP016
47	Shakespeare	URSA Major Minerals Incorporated	2001-2002	DD, GL, GEM, Samp	2.27681	SP017
47	Shakespeare	Pacific North West Capital Corp.	2002	GL, Pr, Samp	2.27809	SP018
47	Shakespeare	Pacific North West Capital Corp.	2004	IP	2.28292	SP019
48	Shawanaga	J. Melo	2002-2003	GL, Pr, Samp	2.26912	SP001
49	Sisk	Tres-Or Resources Ltd.	2003-2004	DD	2.27866	SP003

	Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
50	Snider	INCO Limited	2003	DD	2.27956	SP001
51	Thistle	J. Legarde	1991	GM	2.14159	SP001
52	Tofflemire	Ike Burns Exploration Corp.	2002-2003	Str, Samp	2.27803	SP006
53	Trill	Wallbridge Mining Company Ltd.	2002-2003	Samp, GL, IP	2.26430	SP006
54	Tyrone	Tearlach Resources Ltd.	2003	Lc, Str, GL, GM, Samp	2.27451	SP006
55	Venturi	I. Burns	2003	Tr	2.27696	SP004
55	Venturi	C. Caron, J. Slack	2004	Pr	2.27950	SP005
56	Vogt	G&R Gagnon	2003	Pr	2.27632	SP004
57	Waters	M. Kosovsky	2003-2004	GL, Str	2.27509	SP017
58	Wisner	Wallbridge Mining Company Ltd., Falconbridge Limited	2004	DD, Samp	2.27261	SP022
58	Wisner	Wallbridge Mining Company Ltd., Falconbridge Limited	2004	AM, AEM	2.28416	SP023
58	Wisner	G. Barry	2004	Str, Tr	2.28520	SP024
58	Wisner	Wallbridge Mining Company Ltd., Falconbridge Limited	2004	DD, Samp	2.28403	SP025
58	Wisner	Wallbridge Mining Company Ltd., Falconbridge Limited	2002	GEM	2.28207	SP026
58	Wisner	Wallbridge Mining Company Ltd.	2004	GL	2.28751	SP027

Figure 4. Exploration activity in the Sudbury area, 2004. (Keyed to Table 6.)

Table 7. Mineral deposits not being mined in the Sudbury District in 2004.

Abbreviations

AF ..... Assessment Files
CMH ..... Canadian Mines Handbook
GR ..... Geological Report
MDC ..... Mineral Deposit Circular
MDIR ..... Mineral Deposit Inventory record
MLS ..... Mining Lands, Sudbury
MR ..... Mining Recorder
NM ..... The Northern Miner
OFR ..... Open File Report
PC ..... Personal Communication

Deposit Name/NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Angus deposit (MDIR 31L14SW00014)	Ti, Fe	141 000 000 T @ 34.58% Fe, 15.64% TiO_2 to 1000 feet deep	Randsburg International Gold Corp.	AF Angus Twp.	Active
Bissett Creek deposit (MDIR 31L01SE00002)	flake graphite	26 038 000 T @ 1.86% flake graphite; 4744 000T @ 2.99% graphite	Industrial Minerals Inc.	AF Maria Twp.	Active
Brazeau Prospect (MDIR 31L02NE0010)	Va, Ti, Fe, (garnet)	110 000T @ 0.76% V_2O_3, 7.9% TiO_2, 35.2% Fe for two lenses to 100 ft.; 950 000 T for 6 lenses to 100 ft.	A. Clark	MRC 11	Inactive
Burwash Lake Prospect (MDIR 41P02SW00006)	Fe	15 possible pit areas outlined containing indicated or inferred reserves of 450 000 tons per vert. foot, aver. 20.7 % Fe. Potential tonnage est. @ 100 million tons. Preliminary concentration tests – concentrate grading 68.2% Fe, 5.0% SiO_2 with recovery of 93%	E. Blanchard	MRC 11	Inactive
Butler (Crocan Lake) prospect (MDIR 31L11SE00012)	Kyanite	50 Mt @ 13-17% kyanite	Kyanite Mining Corp.	AF Butler Twp.	Inactive
Butler Vermiculite deposit (MDIR 31L11SE00003)	Vermiculite	"A" zone: 144 000T @ 50-90% vermiculite	Hedman Res. Ltd.	n/a	Active
Cummings Lake Prospect (MDIR 41I16NE00036)	Fe	327.9 Mt @ 26.9% soluable Fe total	D. Laronde	MRC 11	Inactive, underground exploration and bulk sampling
Errington/Vermilion Mines (MDIR 41I11SW00006)	Zn, Cu, Pb	4.4 Mt @ 1.3 3% Cu, 1% Pb, 4% Zn; 9 Mt @ 1.14% Cu, 1% Pb, 3.8% Zn (drilling by Falconbridge Ltd. has increased these figures)	Falconbridge Ltd.	MRC 12	Inactive, past producer
Falcon Gold (MDIR 41I10SE00003)	Au	Estimate 60 000 t @ 0.23 oz/Au ton	Kinross Gold Corp. / Millstream Mines Ltd.	E. Stringer, prospector, PC 1995	Active

Deposit Name/NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Fostung (Texas) (MDIR 41I04NE00036)	W, Mo	F33-10 zone, 100 000 tonnes/vertical m @ 0.214% WO_4 with 81 200 tonnes/vertical m @ 0.23% WO_4 and 0.016 % MoS_2	Breakwater Resources Ltd.	Ginn, R. M. and Beechan, A. W., CIM Bulletin, v.77, No. 863, p.60, 1984	Inactive, extensive work by Sulpetro Minerals Limited in late 1970s, early 1980s
Geneva Lake Mine (MDIR 41I13SE00002)	Cu, Pb, Zn (Ag, Au)	170 000 T @ 11% Zn. (Small production - 80 588 tons high grade ore)	D. Beilhartz	Properties with Mineral Inventories, Ontario, Canada, February 1996	Inactive, past-producer 1940s
Kidd Copper (AER Nickel)	Ni, Cu, PGE	Estimated 0.5 Mt averaging 0.71% Cu, 0.62% Ni in Robinson Zone (No. 1 Shaft area); 0.275 Mt @ similar grade in Rosen Zone (No. 2 Shaft area)	Crowflight Minerals Inc.	Canadian Mines Handbook (1969-70)	Active diamond drilling
Parkin Calcite (MDIR 41I15SW00041)	$CaCO_3$	147 460 probable and possible tons of "good, fair and poor" calcite	J. Brady	AF Parkin SP025	Inactive
Spanish River Mine (MDIR 41I05SW00014)	Cu, PGE	Estimate 0.9 Mt @ 0.5% Cu + PGM	D&H Consulting Services Inc.	AF	Inactive, past-producer 1969-70. 14 500 T stockpile on surface
Stralak Deposit (MDIR 41I13SE00044)	Zn, Cu, Pb (Ag)	800 000 tons @ 4% Zn, 0.3% Cu, 0.5% Pb, 2.0 opT Ag	Stralak Resources Inc.	AF	Inactive, last active 1993, diamond drilling
Sudbury Shakespeare (MDIR 41I05SW00076)	Ni, Cu, PGE	Estimated 2.1 million tons @ 0.36% Ni, 0.42% Cu, , 0.44g/t Pd, 0.40g/t Pt, 0.22g/t Au	Falconbridge Ltd., Ursa Major Minerals Inc.	Ursa Major Min. (company report)	Active
Wikwemikong (MDIR 41H13SE00012)	dolomite	Undetermined but possibly significant	Wikwemikong Unceded Indian Reserve	n/a	Inactive, some widely spaced diamond-drill holes. Feasibility and several reports

Note: The resource estimates in this table to not follow the required disclosure for reserves and resources as outlined in National Instrument 43-101 and are historic figures generated by past workers.

LAND USE PLANNING ACTIVITY

Land use planning activity in the Sudbury District is administered by D. Rowell, Northeast Regional Land Use Geologist, Ontario Geological Survey.

During the course of the year, comments and observations on municipal and provincial land use issues and concerns were provided by the Sudbury District Geologist to the Northeast Regional Land Use Geologist with respect to planning activities in the following areas of concern: Killarney Provincial Park expansion, Wolf Lake area, Mackelcan Road access, and Wanapitei First Nation land claims.

RESIDENT GEOLOGIST STAFF AND ACTIVITIES

In 2004, District Geologist M. Cosec, P. Geo., and District Support geologists D. Farrow and J.M Gaudreau staffed the Sudbury District Geologist Office. Summer Experience Program students K. Schonberger and J. Woodley ably assisted the office.

All staff attended and presented a Sudbury District mining and exploration poster at the Ontario Prospectors Association Northeast Geoscience Symposium held in Sudbury in April 2004.

M. Cosec authored an article on the geology and historical importance of mica production in central Ontario for publication in *Cottage Life* magazine. Several contacts with local media outlets were also handled.

A tour of the Inco Limited Copper Cliff mill and smelter facilities was presented to a 23-member geoscience and metallurgical engineering delegation from Turkey.

M. Cosec provided the Ontario Provincial Police with geoscientific information and geophysical instrumentation in successfully solving 2 major criminal investigations.

D. Farrow completed a six-month training and development assignment as acting District Geologist for Southwest Ontario at the Mines and Minerals Information Centre in Toronto, returning to Sudbury in March 2004. Other training and development opportunities for D. Farrow included participation in meetings of the Regional Economic Development Branch area team as alternate for the Sudbury District Geologist.

D. Farrow presented a mineral prospecting talk to Mineral Resources Engineering students from Laurentian University along with a tour of the Sudbury District Geologist Office in September. He also participated in 4 field trips and 1 mine visit during the year. Organizational assistance was provided for a field trip of the Sudbury Structure for the Department of Geological Sciences at Pennsylvania State University with Dr. H. Ohmoto. W. Meyer, consulting geologist, kindly volunteered to lead the trip.

As Co-Chair of the Willet Green Miller Centre Joint Health and Safety Committee, D. Farrow participated in workplace safety inspections and committee meetings.

In 2004 J.M. Gaudreau provided office and field supervision under the Summer Experience Program for 2 students. One field investigation was carried out in this program in Merritt Township.

M. Gaudreau provided assistance to R. Debicki, Land Use Planning and Policy Co-ordinator, Ontario Geological Survey, who carried out a prospecting course and field trip and a training program for Wanapitei First Nation and Whitefish First Nation groups in the Sudbury area.

M. Gaudreau provided assistance to M. Hailstone, P. Geo., Sault Ste. Marie District Geologist, who carried out a property visit of the G. Salo nickel-copper-cobalt property in Dieppe Township.

M. Gaudreau accompanied D. Farrow, E. Solonika (Mineral Development and Lands Branch, Ministry of Northern Development and Mines), and R. Mandal (Mineral Development and Lands Branch, Ministry of Northern Development and Mines) to the Wallbridge Mining Company Limited nickel-copper-PGE property in Wisner Township.

M. Gaudreau participated in an underground tour at the FNX Mining Company Incorporated / Dynatec Corporation McCreedy West Mine in Levack Township

M. Gaudreau and D. Farrow performed 2 field investigations to collect samples of lamprophyre. These areas included Merrick Township and Dublin Township.

M. Gaudreau also attended the Prospectors and Developers Association of Canada 2004 annual convention in Toronto.

The office handled approximately 3000 telephone and in-person enquiries in 2004.

The Sudbury District Geology office provides free, short-term loans of a Beep-Mat and a proton magnetometer to qualified explorationists.

Table 8. Property visits conducted by the Sudbury District Office in 2004.

Number (keyed to Figure 5)	Property / Occurrence	Township	Commodity
1	Copper Cliff	McKim	Ni, Cu, PGE
2	Creighton Mine	Creighton	Ni, Cu, PGE
3	Scadding Mine	Scadding	Au
4	Wallbridge Mining Company Limited	Wisner	Ni, Cu, PGE
5	Gord Salo	Truman	Cu, Ni, Co, PGE
6	Lamprophyre Occurrence Hwy 11	Merrick	Lamprophyre
7	Lamprophyre Occurrence Hwy 11	Widdifield	Lamprophyre
8	Lamprophyre Occurrence Hwy 144	Dublin	Lamprophyre
9	McCreedy West Mine	Levack	Ni, Cu, PGE

PROPERTY EXAMINATIONS

Wallbridge Mining Company Limited—Broken Hammer Zone (D. Farrow and J.M. Gaudreau)

Wallbridge Mining Company's Wisner property covers 512 ha along the North Range of the Sudbury Igneous Complex. The property is in Wisner and Bowell townships, about 30 km north of Sudbury. Access to the Broken Hammer exposures is gained by following Notre Dame Boulevard north from Sudbury to Hanmer, then continuing via secondary road north past Joe Lake and Inco Limited's North Range Shaft to the end of the road. A skidder road runs approximately 1 km from a parking area to the Broken Hammer showing on claim #1229369 in Wisner Township.

Extensive stripping and washing has exposed a variety of rock types (see Figures 6 and 7): amphibolite, banded iron formation, and metasedimentary gneiss, along with granitic gneiss, metagabbro, granite, quartz monzonite, and pegmatite dikes occurring in contact with, or included as xenoliths in, Footwall and Sudbury breccias.

Mineralization occurs in sulphide veins, veinlets, and disseminations hosted by both Sudbury Breccia and Archean Footwall Breccia. Moderate to steeply dipping, massive chalcopyrite veins from 2 to 120 cm wide contain minor millerite, magnetite, and pyrite and commonly have an alteration halo of actinolite-chlorite-epidote with disseminated chalcopyrite. Veinlets and stringers less than 2 cm in width occur commonly along joint surfaces and in zones associated with the larger veins. Disseminations of chalcopyrite with minor pyrite occur irregularly around veins and veinlets.

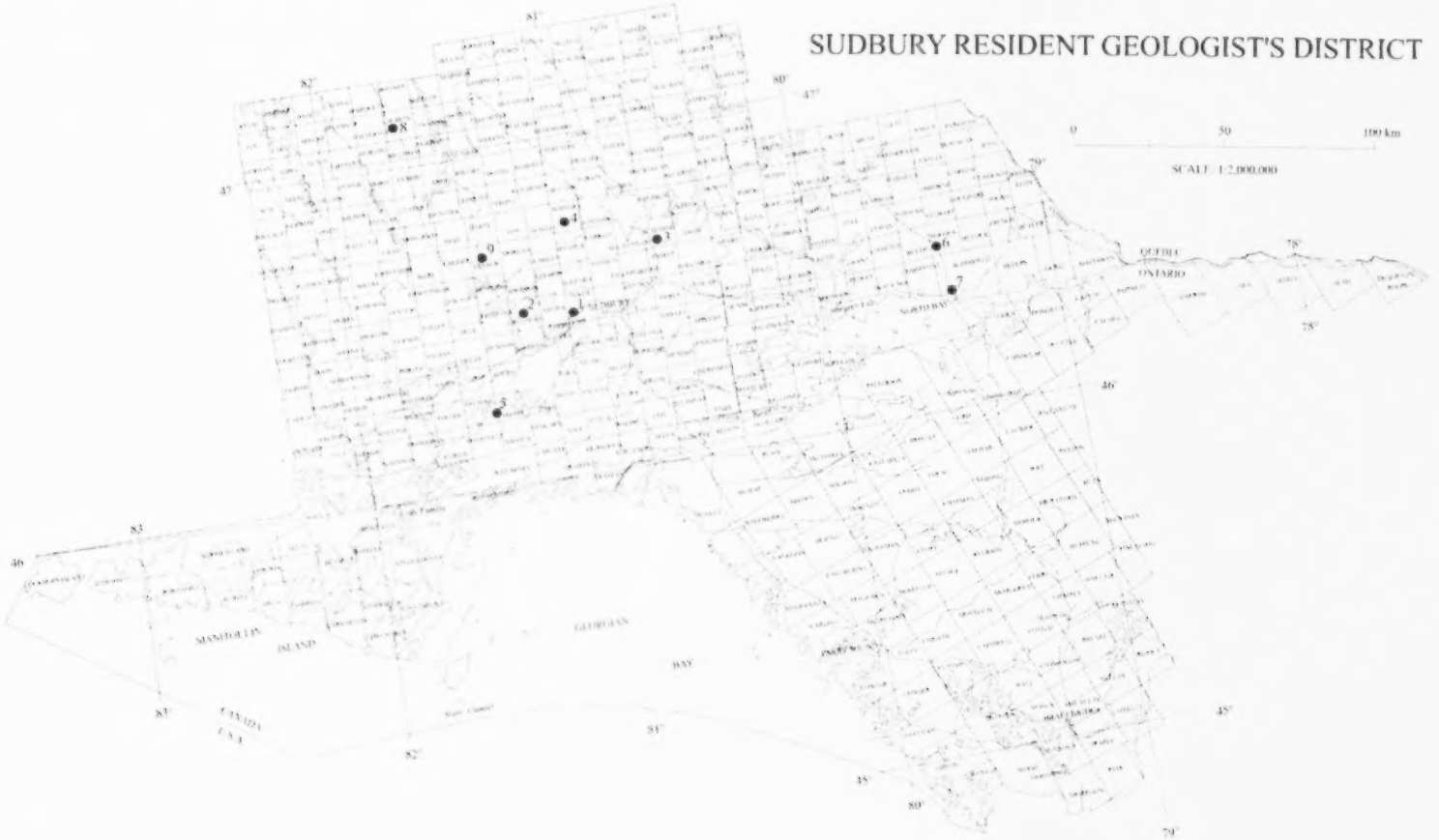


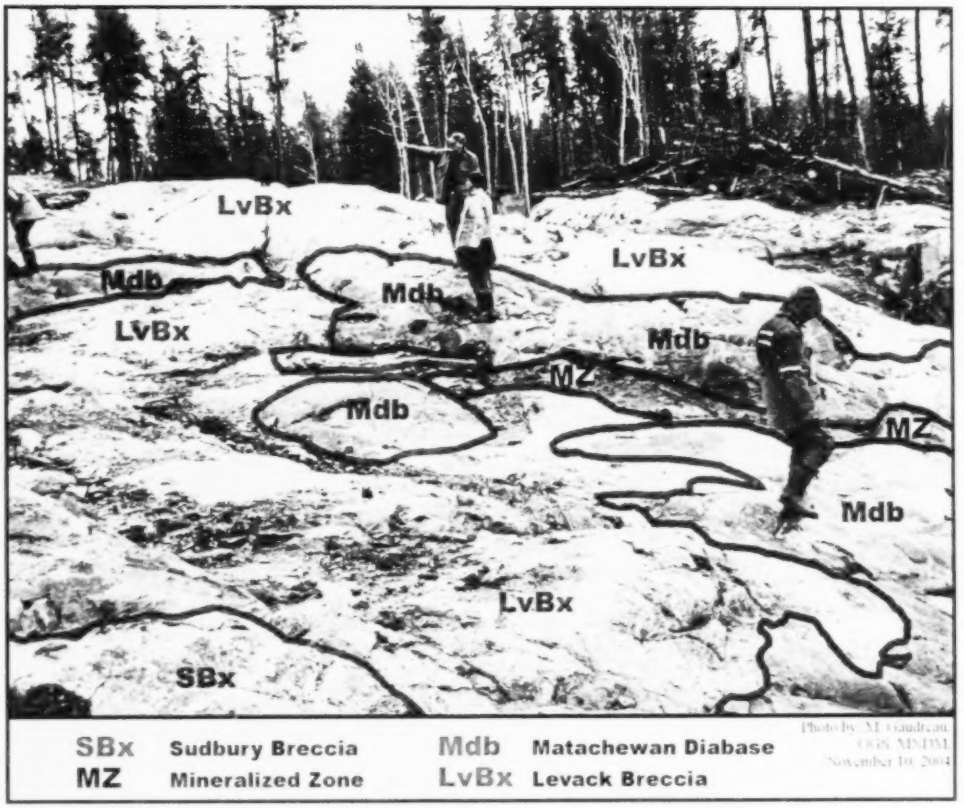
Figure 5. Property visits conducted by the Sudbury District Office in 2004 (keyed to Table 8).

Figure 6. Wallbridge Mining Company Limited, Broken Hammer Zone, Wisner Property, Wisner Township. Looking north.

Mapping, prospecting and stripping located high-grade copper-platinum-palladium+gold mineralization on the property during the 2003 field season. Subsequent work on the Broken Hammer Zone included ground and airborne geophysical surveys, extensive stripping, channel sampling, and follow-up diamond drilling. As of December 2004, a near-surface, westerly plunging zone of mineralization, continuous over a 200 m strike length and a width of 20 m, with an average true mineralized thickness of 25 m, had been defined. Wider, very high-grade zones appear at the intersection of this roughly east-trending mineralized zone with a series of north-trending structures, the extent of which have not been fully defined by drilling to date. The Broken Hammer Zone remains open to the west.

Footwall rocks in the vicinity of contact deposits have been known to host both vein-type and breccia-hosted copper-platinum-palladium mineralization since the 1960s, when the Strathcona Deep Footwall copper zone was discovered. Other examples of this type of mineralization are Falconbridge Limited's Nickel Rim Deep discovery (13.2 Mt of 3.5% Cu, 1.7% Ni, 1.9 g/t Pt, 2.2 g/t Pd, and 0.8 g/t Au) and FNX Mining Company Limited's PM deposit at the McCreedy West Mine.

The very high grade of the sulphide material in the fracture stockwork is encouraging. It is significant that some of the high PGE values were obtained from very low percentage sulphide samples that at first did not appear to be well mineralized and located outside the obvious stockwork zones. The high Pt:Pd ratio of the mineralization, 1:1, relative to many other deposits at 0.3:1, is considered very positive for the contained metal value of this mineralization.



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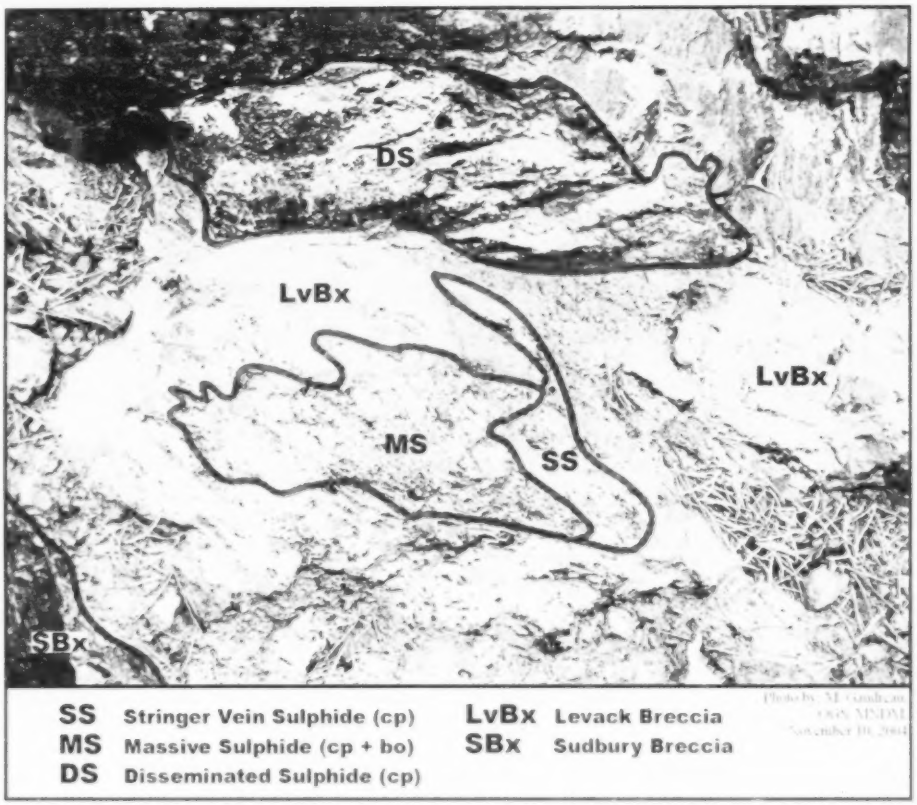


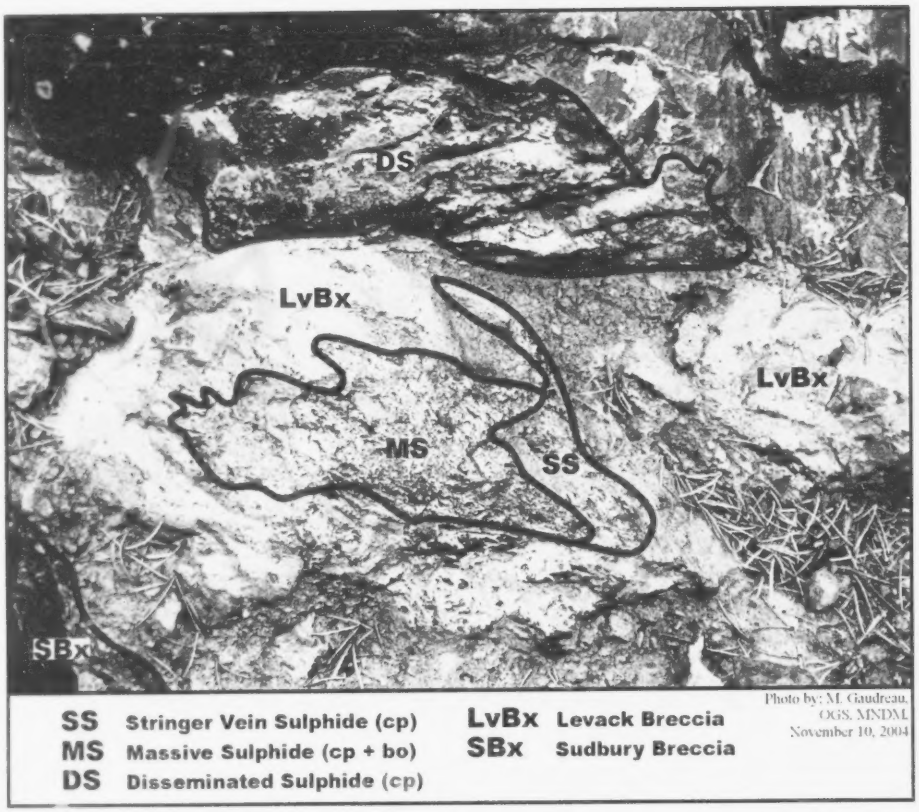
Figure 7. Wallbridge Mining Company Limited, Broken Hammer Zone, Wisner Township.

The Broken Hammer Zone occurs along the boundary between the Wallbridge / Lonmin Sudbury Camp JV and the Wallbridge / Falconbridge Four Times JV portions of the Wisner Property. Wallbridge is funding the current work program on the Four Times JV portion of the property, which will increase its interest in those lands.

Panache Lake—G. Salo PGE Property (M. Hailstone and A. Pace – Sault Ste. Marie District Geologist Office)

LOCATION AND ACCESS

The Panache Lake property occurs in Dieppe and Truman townships, 30 km southwest of Sudbury. The property is accessible by travelling west from Sudbury on Regional Road 55 to the village of Whitefish, then south on Route 10 to Lake Panache. The eastern end of the property can be reached from the marina at the end of Route 10 and then by a 7 km boat ride to Sawmill Bay. The centre of the property can be reached by driving west from the marina on Northshore Road a distance of 11 km to the residence and wharf of G. Salo, then by boating 1 km to the south to access walking and ATV trails, which lead to the main discovery, the "B" showing. The west-end of the property can be accessed by boat from the Salo wharf or by road 12 to 15 km southeast of Espanola. Access to interior claims requires foot travel over 2 to 5 km or by setting up a fly-in camp. Access by snowmobile in winter is more efficient for geophysics and drilling programs (Lane 2001). The property consists of 158 contiguous claim units covering 2500 ha.



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HISTORY

There is little documented work on the property prior to 1954, when J.A. McClasky diamond drilled 5 holes that intersected up to 3.81 m of finely disseminated to massive pyrite, chalcopyrite and pyrrhotite in gabbro, reported as basalt. In 1983 and 1987-88 Lac Minerals Limited and BP Canada Incorporated, respectively, carried out airborne magnetometer and electromagnetic surveys. Results of any ground reconnaissance are unknown. Between 1992 and 1999 prospector G. Salo conducted prospecting, sampling, ground magnetometer, ground VLF-EM, stripping, and trenching, largely financed under the Ontario Prospectors Assistance Program. In 1999, discovery of a semi-massive sulphide zone at a gabbro contact led to the discovery of a PGE showing (up to 1.7 g/t palladium+platinum) associated with blebs of sulphides in a coarse-grained lecucogabbro at the "B" showing. Pacific North West Capital Corporation optioned the property in 2000 and the PGE showing was stripped over 100 m. Channel sampling confirmed the showing, and a broadly anomalous zone of PGE was defined over an area 400 m by 100 m (Lane 2001).

GEOLOGY

The regional geology of the area has been described by Frarey (1985), Card (1978, 1975), and Debicki (1977). The Panache property is underlain by south-dipping Paleoproterozoic Huronian Supergroup (2.2 Ga to 2.4 Ga) quartz arenite of the Serpent River Formation and by southwest-dipping, laminated limestone and siltstone of the Espanola Formation, which are intruded by dikes and sills of Nipissing diabase (ca. 2.2 Ga).

The property encompasses the south limb of the Lake Panache Anticlinorium. Beds dip 50 to 70° to the southwest, and Huronian formations young southward (Mississaugi to Bruce to Espanola to Serpent formations). The mafic intrusive sills are emplaced at or near formation boundaries. At the east end of the property the northern gabbro may cross-cut the formations and narrow into a possible feeder dike.

Regional metamorphic grade is middle to upper greenschist facies. Greywackes and argillites are altered to biotite. Fine crystalline gabbros are altered to actinolite and biotite. Pyroxenes in coarse gabbros are partially altered to hornblende. Porphyroblastic textures were observed locally.

The major east-northeast-oriented Lake Panache Fault displaces geology up to 1000 m in the northernmost portion of the property. Numerous northeast-oriented cross-faults and several northwest-oriented cross-faults disrupt geology throughout the property. The faults are sometimes brecciated and exhibit albite and carbonate alteration. A limited number of assays suggest that cross-structures are locally mineralized with gold and PGE. In general, mappable intrusive units and their contacts can be traced across the property (Lane 2001).

MINERALIZATION

Cosec and Meyer (1995) have previously described mineralization on the property. Two mineralized locations were examined on the property, shown in Figures 8 and 9 as areas "A" and "B".

Area "A"

Mineralization occurs as a 1.5 by 4 m pod of pyrrhotite + pyrite ± chalcopyrite (Figure10, waypoint "003"), and quartz veining with a 1 by 3 m pod of massive pyrrhotite + marcasite (Figure10, waypoint "002"). Trenching has exposed both mineralized areas. The sulphide pod, exposed in a pit at the bottom of the hill, was chipped sampled over 3.0m and assayed as high as 0.736% Ni, 0.212% Cu. 0.054% Co (G. Salo, Prospector, personal communication, 2004).

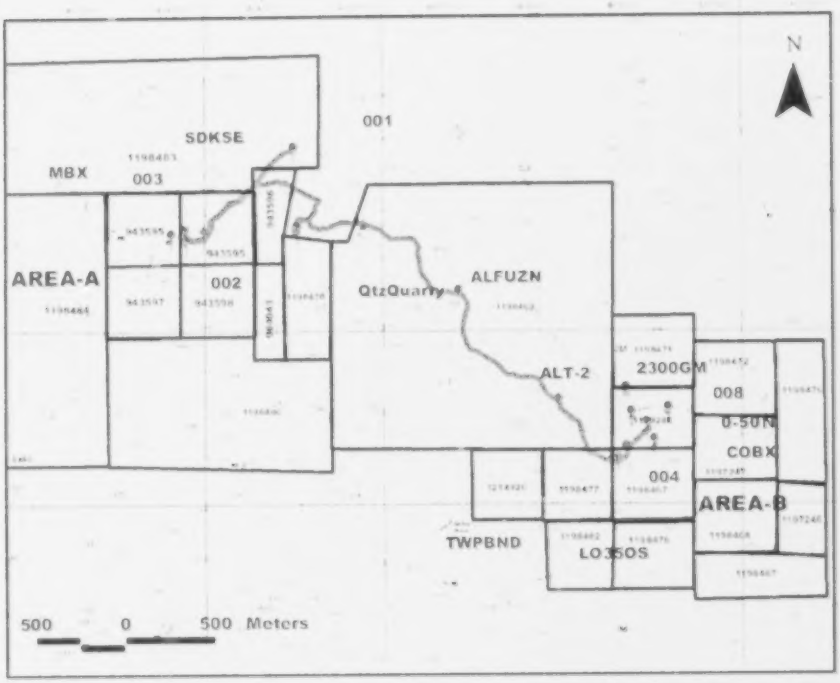

Figure 8. Location of mineral occurrences and ATV trails, G. Salo Property.

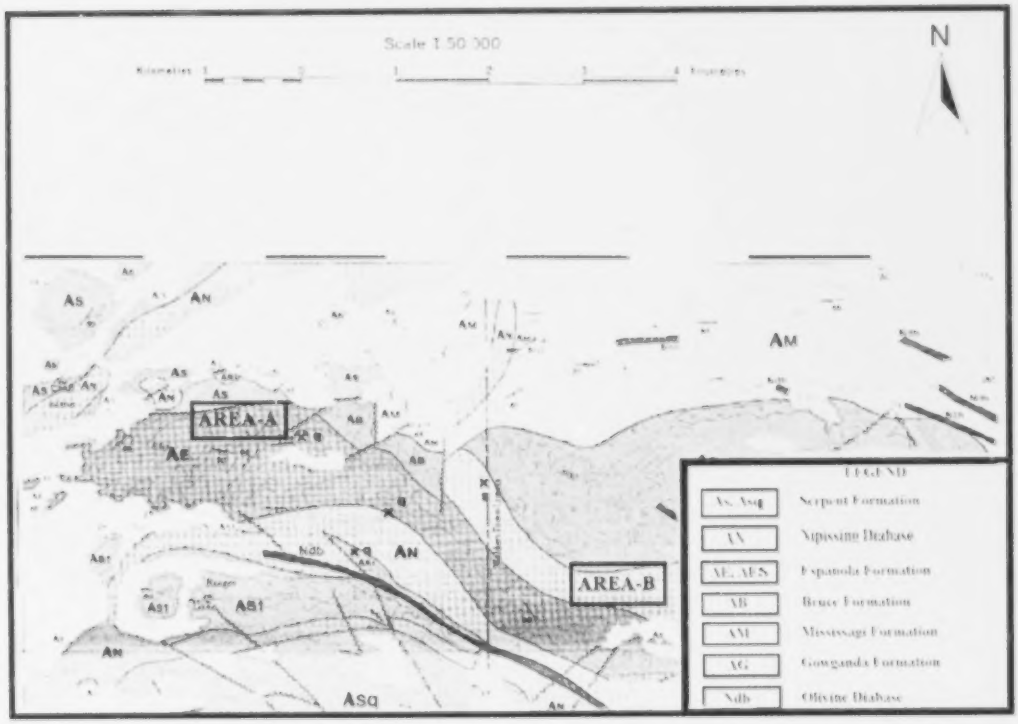

Figure 9. Geology of Lake Panache area, after Frarey (1985).

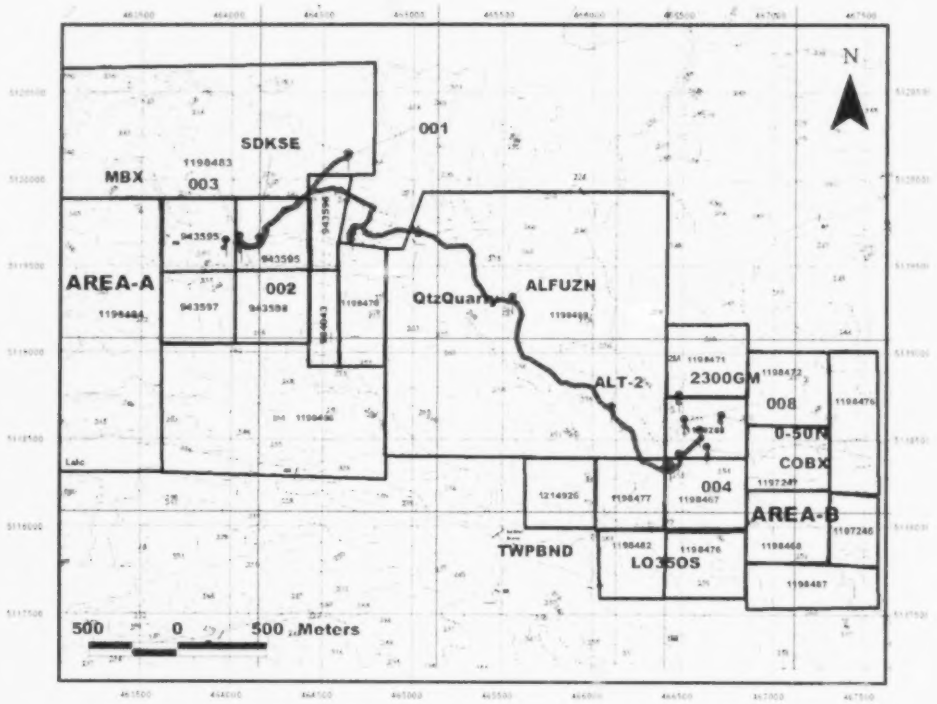

Figure 8. Location of mineral occurrences and ATV trails, G. Salo Property.

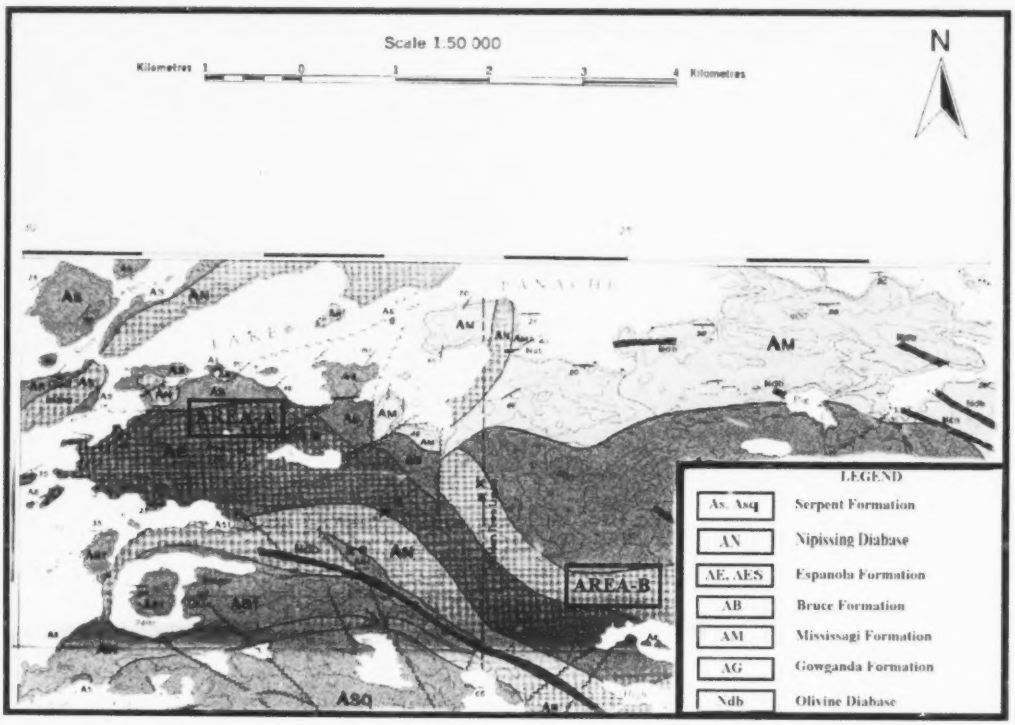

Figure 9. Geology of Lake Panache area, after Frarey (1985).

Figure 10. Area "A", showing massive sulphide pod on top of hill (waypoint "003") behind ladder and sulfide pod with quartz vein in foreground (waypoint "002"). Breccia zone not visible to far left background.

At Area "A" a brecciated Espanola Formation limestone zone 75 m west of the 2 pits has been exposed over a 200 by 100 m stripped area. Manual stripping and rock trenching has outlined an intensely brecciated area, containing localized massive to disseminated pyrrhotite + pyrite ± chalcopyrite. Assays of up to 1.47% Ni, 6.01% Cu from the top pit, and 0.54% Co, 1.6ppm Au and 305 pbb Pd from the bottom pit were obtained from sampling (G. Salo, Prospector, personal communication, 2004).

Area "B"

A brecciated Espanola Formation limestone hosts cobalt as cobaltite and erythrite mineralization within an albite and fuschite altered zone. Cosec and Meyer (1995) previously described this area.

PGE mineralization (Figure 11) is found at a magma-mixing contact between medium- to coarse-grained gabbro with coarse leucogabbro pegmatite zones and darker, fine- to medium-grained melanogabbro. Rounded and ameboid xenoliths of melanogabbro are found near the contact but within the leucogabbro unit. Blebs of pyrrhotite and chalcopyrite mineralization are found within this contact zone, which also hosts localized zones of coarse-grained leucogabbro. Grab sampling in this zone assayed as high as 2283 ppb gold + platinum + palladium. This zone was exposed and sampled over 350 m by Pacific North West Capital Corporation in 2000.

This zone of magma mixing with pegmatoidal leucogabbro and blebby suphides is a classic environment for PGE mineralization. Soil geochemistry data along the Az. 300 trend of this zone could prove useful in delineating additional areas along strike for stripping and channel sampling.

Figure 11. Area "B" showing magma mixing contact between fine- to medium-grained mafic melanogabbro and coarse- to medium-grained leucogabbro containing pegmatoidal zones. Note large rounded xenolith of mafic melanogabbro in leucogabbro.

The property hosts numerous albite (Na) alteration zones (fenitization) and associated brecciation, as noted at areas "A" and "B". The alteration and brecciation, combined with high-temperature massive sulphide mineralization, suggest that near surface mafic magmas of similar composition to the melanogabbro and leucogabbro are venting to surface and subsurface of the Espanola Formation, and that a significant body of magnetic suphides may lie beneath the property. This could be checked with a deep penetrating airborne electromagnetic and magnetometer survey.

More detailed information on the mineralization and the locations of described information is available at the District Geologist office in Sudbury.

GEOLOGICAL HAZARD INSPECTIONS

In 2004 District Support Geologist M. Gaudreau documented and provided updates to the Mines Group on 3 sites in the Sudbury area.

During a follow-up visit to Fraleck Township, M. Gaudreau documented that a chain link fence had been constructed around the Milnet Mine glory hole in Parkin Township.

M. Gaudreau assisted in a field inspection with the Resident Geologist Program and Mines Group staff to G. Salo activities in Dieppe Township.

M. Gaudreau assisted in a field inspection with the Resident Geologist Program and Mines Group staff to Wallbridge Mining Company Limited activities in Wisner Township.

RECOMMENDATIONS FOR EXPLORATION

Platinum Group Elements (PGE), Nickel, Copper

Exploration for platinum group elements has been the dominant activity in the Sudbury District for the past several years. The majority of exploration work is being conducted on differentiated mafic intrusive rocks of the East Bull Lake (2.45 Ga) suite of rocks, which include the River Valley, Agnew, and East Bull Lake complexes. Some work is also being carried out on Nipissing gabbro (2.22 Ga) intrusive rocks, both east and west of Sudbury.

Much of this ground is held in good standing under the Mining Act as claims, leases, and patents, with a substantial amount of assessment work yet to be applied. As such, opportunities for land acquisition on ground underlain by these mafic intrusive rocks are limited. However, several marginal areas of mafic intrusive rocks may also be prospective for platinum group elements. These include, but are not necessarily restricted to, the following:

i mafic intrusive rocks north of the East Bull Lake complex in Lockeyer and Mandamin townships;

ii mafic intrusive rocks, particularly those currently considered as Nipissing gabbro, from west of Sudbury to Elliot Lake, and which are hosted in Huronian Supergroup metasedimentary rocks of the Penokean Fold Belt;

iii Archean mafic intrusive rocks hosted within the Benny greenstone belt;

iv mafic intrusive complexes hosted within the Central Gneiss Belt (i.e., Whitestone, Arnstein and Eau Claire areas, Mattawan Township, McConkey Township);

v areas within the Grenville Front Tectonic Zone east of the River Valley complex (Flett, Angus, and Parkman townships).

Targets to consider include known nickel-copper occurrences previously considered uneconomic for those metals, with emphasis on platinum group elements. There are 2 distinct styles of mineralization, namely:

i disseminated magmatic sulphides, particularly within inclusion leucogabbronorite;

ii disseminated to massive, structurally controlled sulphides

Both types are enriched in platinum, palladium, copper, nickel, and gold. Recent work in the area suggests magmatic sulphides are strongly enriched in the platinum group elements.

Offset Dikes of the Sudbury Igneous Complex

Exploration activity related to the search for undiscovered Offset Dikes of the Sudbury Igneous Complex (SIC) has increased significantly following recent discoveries by Inco Limited at Kelly Lake on the Copper Cliff Offset and at the Totten Mine on the Worthington Offset. Recent discoveries by FNX Mining Company Incorporated on the Parkin Offset and Tearlach Resources Limited on the Worthington Offset have further stimulated the search. Known Offset Dikes can extend tens of kilometres beyond the limits of the SIC margin. Prospective ground includes those areas underlain by Archean, Algoman granitic and migmatitc rocks, particularly north and west of the Sudbury Igneous Complex.

Flagstone

Exploration for high-quality flagstone should be emphasized, as production from one of Ontario's oldest and largest flagstone operations, the Mill Lake Stone Quarry, will be constrained in the coming years. This type of gneissic rock can be found along the Parry Sound shear zone from Parry Sound east to Huntsville. The Muskoka flagstone is in high demand and close to large markets.

OGS ACTIVITIES AND RESEARCH BY OTHERS

Selected recent publications and research work focused on areas within the Sudbury District are listed below.

Sudbury

Easton, R.M. 2004. Project Unit 04-016. Reconnaissance study of Porter and Vernon townships, Southern Province; *in* Summary of Field Work and Other Activities 2004, Ontario Geological Survey, Open File Report 6145, p.13-1 to 13-13.

Napoli, M.G. 2004. Geology of the Wanapitei Complex, Grenville Front, Ontario; unpublished MSc thesis, Laurentian University, Sudbury, Ontario, 236p.

> The Wanapitei Complex, a mafic, layered intrusion, located approximately 13 kilometers southeast of Sudbury, Ontario, and approximately 400 meters south of the Grenville Front, is the only known expression of 1750 Ma mafic magmatism, and its significance in the context of the evolution of the Grenville Front has not been fully understood. The Wanapitei Complex is divisible into two distinct lithological zones. The Gabbro Norite zone is made up of massive and layered olivine bearing norites, norites and gabbros that have well-preserved primary mineralogy and cumulate textures. (Abstract shortened by NDM.)

Dyer, R.D., Takats, P.A. and Felix, V.E. 2004. Sudbury area lake sediment geochemical survey; Ontario Geological Survey, Open File Report 6126, and Miscellaneous Release—Data 131. Lake sediment and water quality data from the Sudbury area, northeastern Ontario.

Grenville Province

Culshaw, N.G., Corrigan, D., Ketchum, J.W.F., Wallace, P., Wodicka, N. and Easton, R.M. 2004. Georgian Bay Geological Synthesis, Grenville Province: Explanatory Notes for Preliminary Maps P.3548 to P.3552; Ontario Geological Survey, Open File Report 6143, 28p.

East Bull Lake / River Valley

Easton. R.M., Jobin-Bevins, L.S. 2004. Geological Guidebook to the Paleoproterozoic East Bull Lake Intrusive Suite Plutons at East Bull Lake, Agnew Lake and River Valley, Ontario; Ontario Geological Survey, Open File Report 6135.

South Temagami

Takats, P.A. and Dyer, R.A. 2004. Temagami Area Lake Sediment Geochemical Survey, Northeastern Ontario; Ontario Geological Survey, Open File Report 6144, and Miscellaneous Release—Data 137. Lake sediment and water quality data for the Temagami area, northeastern Ontario.

Miscellaneous

Debicki, R.L. 2004. Report of activities 2003, Regional Land Use Geologist report, northwestern, northern and southern Ontario regions; Ontario Geological Survey, Open File Report 6133.

Cai, M., Kaiser, P.K., Tasaka, Y., Maejima, T., Morioka, H., Minami, M. 2004. International Journal of Rock Mechanics and Mining Sciences 1997, July 2004, v.41, Issue 5, p.833-847. Generalized crack initiation and crack damage stress thresholds of brittle rock masses near underground excavations.

Mungall, J.E., Ames, D.E., Hanley, J. 2004. Geochemical evidence from the Sudbury Structure for crustal redistribution by large bolide impacts, Nature, v.429, Issue 6991, p.546-548.

Chyi, L.L., Muskett, R.R. 2004. Tectonic emplacement of PGE bearing Cu-Ni sulfide deposits. Geological Society of America, v.36, Issue 3, p.19.

French, B.M. 2004. The importance of being cratered; the new role of meteorite impact as a normal geological process. Impact cratering; bridging the gap between modeling and observations; proceedings. Meteoritics and Planetary Science, v.39, Issue 2, p.169-197.

Spray, J.G., Butler, H.R., Thompson, L.M. 2004. Tectonic influences on the morphometry of the Sudbury impact structure; implications for terrestrial cratering and modeling. Impact cratering; Meteoritics and Planetary Science v.39, p.287-301.

Mungall, J.E., Hanley, J.J. 2004. Origins of outliers of the Huronian Supergroup within the Sudbury Structure; Journal of Geology, v.112, Issue 1, p.59-70.

Pope, K.O., Kieffer, S.W., Ames, D.E. 2004. Empirical and theoretical comparisons of the Chicxulub and Sudbury impact structures; Meteoritics and Planetary Science, v.39, Issue 1, p.97-116.

Table 9. Publications received by the Sudbury District Geologist Office in 2004.

Title	Author	Type and Year of Publication
Map P.3535 - Precambrian Geology- Henry and Loughrin Townships. Scale 1:20 000	R. M. Easton and M. ter Meer	OGS Preliminary Map, 2004
Map P.3533 - Geology, Tectonometamorphic Map of Ontario, Canada and Parts of the United States of America. Scale 1:1 500 000	R. M. Easton and R. G. Berman	GSC Open File 1810 - OGS Preliminary Map, 2004
Report of Activities 2003, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Sudbury District - OFR 6139	M. Cosec, J. M. Gaudreau, J. B. Selway and S. A. Beauchamp	OGS Open File Report, 2004
Report of Activities 2003, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District - OFR 6131	G. Meyer, G. P. B. Grabowski, D. L. Guindon and E. C. Chaloux	OGS Open File Report, 2004
Report of Activities 2003, Resident Geologist Program, Timmins Regional Resident Geologist Report: Timmins and Sault Ste. Marie Districts - OFR 6130	B. T. Atkinson, M. Hailstone, G. Wm. Seim, A. C. Wilson, D. M. Draper, S. Butorac and G. R. Cooper	OGS Open File Report, 2004
Report of Activities 2003, Resident Geologist Program, Southern Ontario Regional Resident Geologist Report: Southeastern and Southwestern Ontario Districts, mines and Minerals Information Centre and Petroleum Resources Centre - OFR 6132	P. J. Sangster, D. Farrow, V. C. Papertzian, C. Lee, M. Barua, D. A. Laidlaw, D. Hemmings and T. R. Carter	OGS Open File Report, 2004
Report of Activities 2003, Resident Geologist Program, Red Lake Regional Resident Geologist Report: Red Lake and Kenora Districts – OFR 6127	A. Lichtblau, P. Hinz, C. Ravnaas, C. C. Storey, L. Kosloski and A. Raoul	OGS Open File Report, 2004
Report of Activities 2003, Resident Geologist Program, Thunder Bay South Regional Resident Geologist Report: Thunder Bay South District - OFR 6129	B. R. Schnieders, J. F. Scott, M. S. O'Brien, M. A. Magee and C. Komar	OGS Open File Report, 2004
Report of Activities 2003, Resident Geologist Program, Thunder Bay North Regional Resident geologist Report: Thunder Bay North District - OFR 6128	M. C. Smyk, G. D. White, M. A. Magee and C. Komar	OGS Open File Report, 2004

Title	Author	Type and Year of Publication
Report of Activities 2003, Resident Geologist Program, Regional Land Use Geologist Report: Northwestern, Northeastern and Southern Ontario Regions - OFR 6133	R. L. Debicki, A. P. Drost, R. J. Fraser, D. J. Rowell and G. R. Yule	OGS Open File Report, 2004
Sudbury Area Lake Sediment Geochemical Survey – OFR 6126	R. D. Dyer, P. A. Takats and V. E. Felix	OGS Open File Report, 2004
Temagami Area Lake Sediment Geochemical Survey, Northeastern Ontario – OFR 6144	P. A. Takats and R. D. Dyer	OGS Open File Report, 2004
Summary of Field Work and other Activities 2004 – OFR 6145	C. L. Baker, E. J. Debicki, J. R. Parker, R. I. Kelly, J. A. Ayer and R. M. Easton	OGS Open File Report, 2004
Georgian Bay Geological Synthesis, Grenville Province: Explanatory Notes for Preliminary Maps P.3548 to P.3552	N. G. Culshaw, D. Corrigan, J. W. F. Ketchum, P. Wallace, N. Wodicka and R. M. Easton	OGS Open File Report, 2004
Ontario Geological Survey Map P.3548 Precambrian Geology Key Harbour area	N. G. Culshaw, D. Corrigan, J. W. F. Ketchum, P. Wallace and N. Wodicka	OGS Preliminary Map, 2004
Ontario Geological Survey Map P.3549 Precambrian Geology Naiscoot area	N. G. Culshaw, D. Corrigan, J. W. F. Ketchum, P. Wallace and N. Wodicka	OGS Preliminary Map, 2004
Ontario Geological Survey Map P.3550 Precambrian Geology Parry Sound area	N. G. Culshaw, D. Corrigan, J. W. F. Ketchum, P. Wallace and N. Wodicka	OGS Preliminary Map, 2004
Ontario Geological Survey Map P.3551 Precambrian Geology Sans Souci area	N. G. Culshaw, D. Corrigan, J. W. F. Ketchum, P. Wallace and N. Wodicka	OGS Preliminary Map, 2004
Ontario Geological Survey Map P.3552 Precambrian Geology Penetanguishene area	N. G. Culshaw, D. Corrigan, J. W. F. Ketchum, P. Wallace and N. Wodicka	OGS Preliminary Map, 2004
Canadian & American Mines Handbook 2004 – 2005	Business Information Group a division of Hollinger Canadian Newspapers, L.P.	Reference, 2004
Geoscience Reporting Guidelines	B. Grant	Reference, 2003

In addition, the Sudbury District Geology office receives copies of the Canadian Mining Journal, *The Northern Miner*, Nickel, and PDAC *In Brief*.

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Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
		LENGTH			
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
		AREA			
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
		VOLUME			
1 cm^3	0.061 023	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m^3
		CAPACITY			
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	**4.546 090**	L
		MASS			
1 g	0.035 273 962	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 747	ounces (troy)	1 ounce (troy)	**31.103 476 8**	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	**0.453 592 37**	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	**907.184 74**	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	**0.907 184 74**	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	**1016.046 908 8**	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	**1.016 046 90**	t
		CONCENTRATION			
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

	Multiplied by	
1 ounce (troy) per ton (short)	31.103 477	grams per ton (short)
1 gram per ton (short)	0.032 151	ounces (troy) per ton (short)
1 ounce (troy) per ton (short)	20.0	pennyweights per ton (short)
1 pennyweight per ton (short)	0.05	ounces (troy) per ton (short)

Note: Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries, published by the Mining Association of Canada in co-operation with the Coal Association of Canada.

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